1930 Was Not the Reprobate

WE do not agree with the prevalent opinion that old 1930 was a reprobate year.

"A disappointing year?" Yes!

"A year of paradoxes?"

The paradox of paradoxes!

Surpluses everywhere of every commodity, including a surplus of paper, backed by huge potential production capacities installed, more-in-the-building, all rarin' to go.

And yet—amid a world of surpluses, a world of men, needy, eager and hungry to consume them, cannot obtain them, must suffer from want of them.

What caused this punitive paradox? A sudden epidemic of congealing fear? Rubbish!

The paradoxical contrast between the prosperity of 1929 and the depression of 1930 lies in the fact that 1930 saw the burning-out of the vast speculative mass production fever with which this country became inoculated back in 1922.

Ford started the intriguing mass production with "tin lizzies" that year, and amassed a pile of money out of it. But on October 31, 1926, the last "Model-T" ran down the assembly racks and for the ensuing 15 months thereafter, nothing came out of his factories but rumors.

What happened?

The collapse of mass production for want of supporting mass consumption.

In the meantime, the covetous, envious, but parrot-like manufacturing fraternities in all divisions of industry had adopted Ford's mass production prosperity panacea.

Promoting financiers furnished promoters of production for personal profit, expansion funds in limitless amounts for promoting the production of limitless amounts of commodities, including paper.

Stocks, bonds and debenture issues of producing corporations were feverishly oversubscribed within the first hour of their offerings by an eager, fever-stricken-production investing public.

Nineteen Hundred and Twenty-seven, 1928 and even most of 1929 were the hey-days for the mass production promoters. The whole blame country "went nuts," as it were, on the production of commodities. Even the Florida "binder boys" of unsavory reputation, who oversupplied the United States with Florida town lots, got into the game of supplying the insatiable demand for mass production stocks, to the eager mass of buyers—and they did a swell job of supplying them, as recent history tells.

Then, all of a sudden—bang! It was all over.

The mass production octopi in the various industries with huge tonnage capacities, hugely in excess of consumptive demand, attempted to force their mass production upon a glutted market which backed away from the growing surpluses.

Price-cutting, and every known unethical subterfuge, which only desperate overproducers caught in the meshes of declining markets would resort to, were put into practice to move their products. What was the result?

Cut-down earnings unwarrantably to below cost basis.

Cut-down earnings meant no dividends for stockholders.

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When that situation reached the stock exchanges of the country, overboard went the stocks and securities of the producers and overproducers, good and bad alike. They have been going overboard ever since and will continue to go overboard until such time as the production of commodities, including paper, are curtailed and brought into balance with the actual demand for them.

In other words, we shall have an unsettled, unstable market for industrial stocks until overproduction ceases and industrial concerns renew earnings applicable to dividends.

Such was the condition at the close of 1930.

It took the whole of 1930 to cure the nation of its speculative production fever.

Nineteen Hundred and Thirty has shown the nation the criminal folly and financial futility of overproduction of commodities.

Nineteen Hundred and Thirty has demonstrated the truth of the age-long principle underlying all barter and exchange—that production of commodities must be kept in actual relationship to the demand for them; that mass production can only continue so long as it is supported by mass consumption.

And, finally, wise old 1930 has set in motion those remedial practices by which the wilful, ignorant aggregations of capital, stupidly managed, which expanded their productive capacities beyond all consumptive limits, are to function in the future.

It seems certain that financial liquidation of excessive over-capitalization of overproducing units and wiping out of huge masses of securities bought and paid for, will follow.

But that is all in accordance with the operation of the well-known fundamental law of demand and supply and is also the penalty which this same law exacts from all of those transgressors who flaunt this principle.

America owes 1930 a deep debt of gratitude for finally checking, and probably for all time abolishing, the speculation in overproduction.

What is needed for 1931 is to transfer emphasis from production to consumption; from supply to demand; curtail production and raise prices; create new markets and more consumers; retire to oblivion lawless promoters of production for personal profit and equip industry with rational management, with leaders of technical training, character and back bone sufficient to fight for right methods and principles of business conduct.

No, we are sure old 1930 is not the reprobate.

This Year's A.P.&P.A. Convention

MORE than ordinary interest attaches to the forthcoming annual convention of the American Paper and Pulp Association which is to be held at the Hotel Pennsylvania, New York, February 16, 17, 18 and 19. For the past twelve months the association has been operating under a new form of organization provided by amendments to the constitution adopted at the annual meeting in 1930. The outstanding changes consisted of the appointment of a general manager and a more equitable method of assessing members for dues whereby firms in membership are assessed in proportion to their gross sales, the voting power of company members being proportional thereto. The assessment is equivalent to 1/66th of one per cent for converters and 1/40th of one per cent for manufacturers, which it may be noted is much below those charged by national associations of comparable scope with the American Paper and Pulp Association.

When the new articles of constitution were adopted last year, doubts were expressed by some as to the ultimate success of the association under the altered system of management and assessment. It had evidently not been forgotten that reforms of a similar kind had been formulated by different committees at almost every annual meeting of the association during a long period of association activities. And that it was possible to make such changes in the structure and organization of a national organization, with a complete revamping of its finances, in a year of business depression such as we have experienced, surely affords splendid testimony to the vitality of the American Paper and Pulp Association. It is surprising to many that the association has been able to forge ahead and show actual progress marked by an increase of revenue without any loss of membership.

Among the reforms effected by General Manager Neal under the new constitution was the absorption of the Cost Association of the Paper Industry to function as a department of the general association, and a change in the Woodlands Section to the Pulpwood Department, while the Waste Utilization and Steam Purification Section became the Engineering Department of the association. It may be noted that the expenses of these departments are now paid out of the general treasury instead of by special collections

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EDITORIAL

as formerly. At the same time, a reserve fund has been started this year to meet emergency situations and do away with the necessity of resorting to special contributions, in other words, passing the hat, as has been customary heretofore.

In view of all this, the keenest interest is taken in the reports which will be presented at the forthcoming annual meeting next month, among others those of the Standardization Committee and the Book Paper Committee. The last named committee has succeeded in effecting a revision of book paper trade customs in conference with a committee of the National Paper Trade Association and it is expected that increased stabilization of business will result therefrom.

For the purpose of bringing before the industry factual data on pulpwood, a frank discussion of current conditions affecting pulpwood in the various producing regions is to be staged by the Pulpwood Department of the association. In addition, technical discussions on pulpwood growing and timber protection will be presented.

An ambitious program has been prepared for the annual meeting by the Cost Department of the association in connection with a plan to develop greater uniformity in cost and accounting procedure throughout the industry.

The German Technical Society

THE German "Society of Cellulose and Paper Chemists, and Engineers," celebrated at a notable gathering in the building of the German Engineers' Society in Berlin on December 5, 1930, the twenty-fifth anniversary of its foundation. Representatives were present from a number of foreign countries, including the United States, which had as delegates from the Technical Association of the Pulp and Paper Industry, Dr. Bjarne Johnsen, of the Hammermill Paper Company, and Paul Koenig, of the Continental Paper & Bag Corporation.

THE PAPER INDUSTRY joins in the universal acclaim of the German Technical Association which has accomplished so much during the past quarter of a century for the advancement of the pulp and paper industry in its scientific aspects. The German society was brought into existence largely through the efforts of Dr. Arthur St. Klein and Sigmund Ferenczi and it was eminently fitting that the valuable services of these two active workers should receive recognition at the anniversary meeting by the election of both men to honorary membership in the society.

Considering its age and accomplishments, in point of numbers the German society's membership is comparatively small, the roll not exceeding 850 but in character its membership ranks very high, all of the best and brightest minds in Germany meeting in its deliberations and contributing to its steady advancement in the work of discovery and improvement of technical processes. Associated with Doctor Klein and Mr. Ferenczi in the work of organizing the society twenty-five years ago was Dr. Willi Schacht, and they were soon joined by Professor Dr. Carl G. Schwalbe and others who have since won universal renown for their lasting contributions to scientific research in pulp and paper work.

Safety Contest Ship Ahoy!

ANOTHER safety contest has been launched. With flags flying, the seventh ship representing the annual contest among members of the Paper and Pulp Section of the National Safety Council, has slid down the ways and is in perfect equilibrium, ready for the sea.

The ship has been declared seaworthy, fit to buffet the storms of carelessness, and manned by a crew of safety leaders who are qualified to inspire obedience to the laws of Safety, the passengers should reach their destinations with better records than have ever heretofore been made.

The proportions of this year's contest have been widened to accommodate all members of the Paper and Pulp Section—whether they are strictly manufacturers of paper, pulp or board, or plants that remanufacture these goods into other products. Only those who are solely engaged in printing or lithography are excluded.

The rules appearing on another page herein, provide for two such divisions. Choice is given to those plants having both a paper mill and a remanufacturing plant on the same premises to enter them either jointly or separately, as desired, when the organizations and records in such plants are separate and distinct from each other.

The groups in each division have been expanded to four in order to bring plants having large numbers of employees and those having small numbers into more equal competition.

The ship is on her course to return in six months, when she will leave immediately again on a cruise of one year. Ship ahoy!

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E D I T O R I A L

LET'S GO!

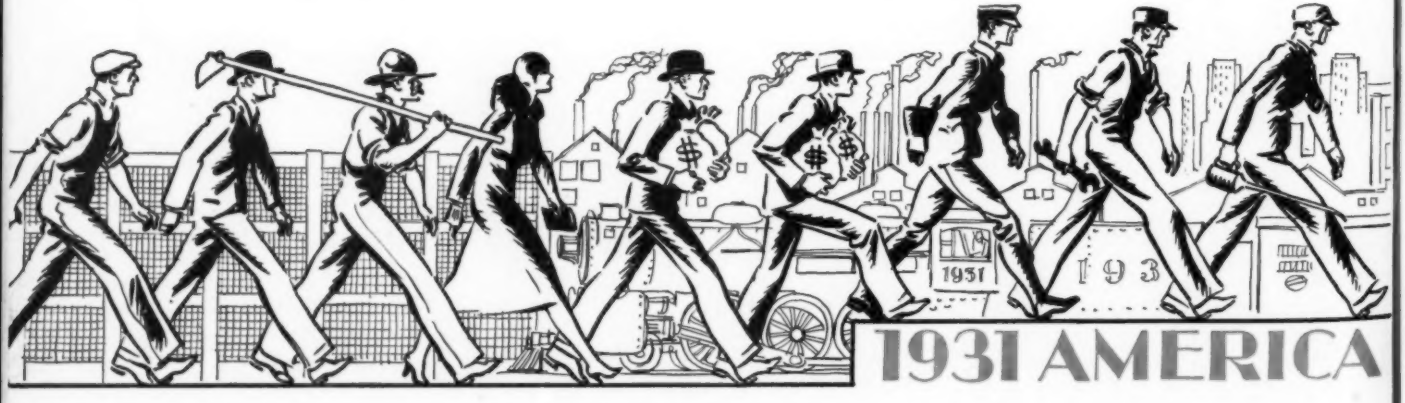
THE year of 1930 is past and gone. It was a year of stress and worry for the average paper and pulp mill official. The theme song of most of these manufacturers has been "I'm Dancing with Tears in My Eyes."

Seemingly, during the past year, everything was halted and every one was taking a rest or getting a new breath. After several prosperous years, 1930 came along and it seemed as though every one was tired out and lessened their pace, and the year will go down in history as one that most of us will try to forget.

We believe that with the beginning of 1931, the turn in the road has been reached and passed. There are many signs to show that there has been improvement and this applies, in a measure, to the manufacture of paper and pulp. We believe that the new year will present sufficient business for all of us if we do our share and make up our minds to use every ounce of our strength for the upbuilding of this great industry. We of THE PAPER INDUSTRY are determined to work a little harder, play a little less, and do our share to help work out the problems of this great industry.

We believe that the paper and pulp manufacturing industry is on the threshold of many revolutionary methods and means which we are sure will help cut costs in the manufacture of these commodities. More men in this industry are using their heads today than ever before. Old methods not only must be, but are being replaced by better and more scientific methods, which will soon take their proper places in this great industry.

We have discouraged the building of new mills under present conditions, where there is such a tremendous overproduction, but



E D I T O R I A L

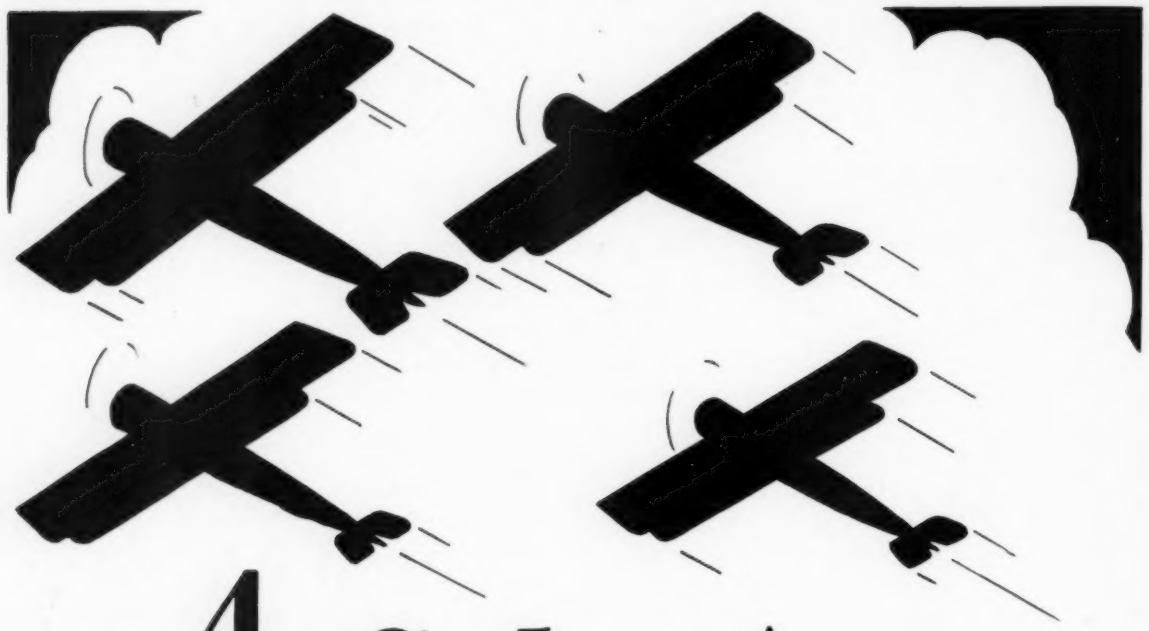
we do advocate that every paper and pulp mill should be overhauled—new machinery and new methods added to take the place of much which is obsolete, so that these plants may be ready to turn out a real product and the largest possible tonnage when there is call for such production.

We want to repeat here what has often been said in THE PAPER INDUSTRY—that every one connected with this publication has the highest regard and kindly feeling toward each individual connected with every organization in this industry. This publication is edited and prepared so that every one in the industry who desires to know more about the making of pulp and paper may be benefited. If anything has been published in its columns during the year that has offended any one, we are sorry indeed, because it was not intentional. We may not agree with every one as to policies, but we at least have an earnest desire to do that which we believe is for the best interests of the entire industry.

We can all look toward the East and see—if our minds are made up to do our full share for the betterment of the industry, the star of better times shining through the mists of doubt and fear. The one big problem of this industry to-day is not to turn out a larger production, but to make a better product at the same cost. In other words, to make a better sheet and to cut costs, these are the big problems which must be solved by every manufacturer of paper and pulp, and this applies to every forward-looking employee in these mills, whether his position be that of mill manager or skilled workman.

Now is the time for every one to prove his mettle, and if each and every one does his full share, 1931 will be a good year for all of us, so—

LET'S GO!



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DU PONT ALIZARINE SAPHIROLE B. Excellent fastness to light, and produces shades which are excellent for two-sidedness. Alone or shaded with du Pont Brilliant Crocein FL will produce all blue bond shades. In combination with du Pont Quinoline Yellow Conc. will produce green bonds.

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THE PAPER INDUSTRY

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Vol. XII JANUARY, 1931 No. 10

Lessons in Paper Making

Cylinder Machine Series—Lesson I

By HARRY WILLIAMSON

Consulting Specialist with L. V. Estes Incorporated, Chicago

It is with the greatest of pleasure that the publisher of THE PAPER INDUSTRY again introduces Mr. Harry Williamson to its readers with the resumption herein of his extraordinarily interesting series of Lessons in Papermaking.

During the publication of the author's former articles in THE PAPER INDUSTRY which dealt particularly with the operation of the fourdrinier machine, scores of requests were received for a special series treating on cylinder machine operations. These have received the most serious consideration of Mr. Williamson, and the accompanying article is offered as the first lesson in such a series.

As announced in our December issue, Mr. Williamson, who was formerly connected with the Champion Fibre Company, Canton, N. C., has now become associated with L. V. Estes Incorporated, industrial engineers, Chicago, where his wide experience and knowledge of papermaking is available in the form of a specialized technological service.

ABOUT eighteen months have passed since the last article of a series from the pen of this writer entitled "Lessons in Paper Making," and dealing primarily with fourdrinier operation, was published in this magazine.

During the publication of that series, and many times since, I have been requested to write a similar series dealing with cylinder machine operation.

Now, despite the fact that this writer has enjoyed the experience of running cylinder machines as well as the fourdriniers and also has been superintendent of both types of paper mills, such requests are not easily complied with.

Suppose we tell a little story to point a moral.

Some years ago this writer became acquainted with a gentleman who for many years filled the office of mayor in a small town. At any public and semi-public gathering it was the custom to call upon the gentleman to speak. Invariably he started by saying, "Ladies and gentlemen, I have nothing special to say this evening, just a few rambling remarks." Almost always, unfortunately, his statement was literally true. He had nothing to say except "rambling remarks."

If it is important that a public speaker should have something to say—and know how to say it—it is doubly important that a writer should **know** what he is writing about. Particularly is this true when the subject matter is intended to be Vocational Instruction. Hence the many months of lapsed time between the end of the fourdrinier series and this, the commencement of the cylinder series.

The conventional "Good Morning" is quite frequently replaced with, "What do you know?" amongst papermakers. If the machine has been running badly, the answer is usually a weary, "Less every day."

Transposed into—"What do you know about cylinder machines to write about?" was the question this writer felt compelled to ask himself before attempting to write this series.

Reading over the files of "Special Reports" compiled by the Technical Association, a certain papermaking problem received twelve answers. Of the twelve answers, **nine** were entirely different. Yet, **each of the twelve answers were correct under the conditions described in the answers.** This problem incidentally, was a cylinder machine problem.

What do you know that is **indisputable fact?**

I wish every one of my readers would ask himself this question and answer it to himself **in writing.** Do not soliloquize. It is so easy to convince oneself over a pipe. Put it down on paper; examine it impartially; prove it to yourself; then take the opposite side and attempt to **prove yourself wrong.**

Some few months ago this writer hired a man as assistant superintendent. He was, and is, a good man, proven so by his references and many years

of experience in responsible positions. Yet, for a few weeks he had a very trying time. "Your stock acts so different" was his invariable comment on a bad shift's work and he worried himself sick.

He is not alone in such an experience, this writer has enthusiastically put into operation treatment of stock, already proven successful in another mill, and failed to obtain the desired results.

Just one more illustration.

A sample run of a new shade of press board had to be made—a chestnut brown. The boss machine tender said, "Why, I have a formula already for that; just the very thing; I made it before." He used that formula and produced a beautiful shade of dark olive green. The unbleached kraft pulp he was using "happened" to be not quite so well washed and contained a lot more yellow than the unbleached kraft to which that particular formula applied in another mill.

Again he is not alone. This writer has also pulled similar "bonehead plays" and, no doubt, so have many of my readers.

But why?

Shift the base and the formula is not worth the paper it is written on except as a guide.

Apart from obtaining a color match, how is this rule applicable and for what reason is it included in an article on cylinder operation. Simply to clear the cob-webs from our minds, to give us a common understanding. You know and I know that secretly, and sometimes not so secretly, the fourdrinier papermaker thinks, "Shucks, that fellow can get by anyhow, **he only makes board that cannot be broken even with an axe.**" The cylinder man chuckles quietly and says **"I'd like to see that guy put six plies together without blowing."**

And so it goes. **Alter the mechanical conditions and a lot of the things we think we know will fail to give us the results we expect.**

Fundamental Principles Common in Cylinder and Fourdrinier Operations

In broad general terms, papermaking is comprised of three main phases—

(1) The **chemical preparation.**
(2) The **physical preparation.**
(3) The **formation** or **machine operation.**

These three phases are equally applicable to fourdrinier and cylinder operation. We also know that the closer the interlocking control between these phases, the greater the co-related and co-operative action taken, the closer the resultant paper will approach the desired standard.

Given the same quality of paper to make then, what is the **reason** for cylinder machine papermaking as distinct from fourdrinier papermaking?

Primarily, it is a question of the **basis weight** of the paper to be made.

The **mechanical** features of the cylinder machine are arranged to manufacture considerably heavier basis weights of paper and board than would be possible to make on the general purpose fourdrinier machine.

The chemical preparation is the same. The physical preparation is the same **fundamental principle but with finer control as to "degree."**

The mechanical features are based on **the same fundamental principles as the fourdrinier machine, have a wider range of operation, are more cumbersome and difficult to operate, and in some respects will not produce as desirable a sheet.**

But they **are the same fundamental principles** and it is this thought the writer wishes to impress upon the minds of his readers in this first article of this series.

One might inquire as to why it is necessary to impress such thought. We are too apt to think the other fellow's problems, and what is more important, **his solution of those problems,** is not immediately applicable to our particular type of operation. The man who has been brought up on cylinder machines only, usually confines his reading and studies to subject matter dealing only with such operation. The fourdrinier man follows the same course.

During the publication of the 30 articles dealing with fourdrinier operation, this writer received scores of letters asking "when are you going to give us something on cylinder machines?" This writer respectfully submits that every word so published was applicable to cylinder machines **in greater or lesser degree, because the articles dealt only with the fundamental principles of papermaking.**

Application of Principles to Design of Cylinder Machine

What then is this series to deal with specifically?

The **application** of those same principles to the mechanical design of the cylinder machine.

The operation of the mechanical features of the cylinder machine to obtain specific results.

The discussion of the particular problems pertaining to cylinder machine operation arising from the mechanical design and the lamination of a number of separately formed sheets into a single unit.

The major mechanical difference between the fourdrinier and the cylinder machine is that governing the method and control of the formation of the paper web.

In the fourdrinier machine operation, the liquid volume is delivered to the wire mesh, traveling in a horizontal direction, controlled by the dimensions of the slice opening, the shape of the slice, the depth of the head behind the slice, the "lay" of the aprons and the action of the auxiliary units which may be inserted behind the slice. After the liquid volume is delivered to the wire, formation is controlled by the running speed of the wire, the sideways shake imparted to the wire, **the rate of capillary drainage of**

water from the liquid volume, and the time rate and volume of suction applied.

In the cylinder operation, the wire mesh, the mold upon which the sheet is formed, **is rotating partially immersed in the liquid volume of stock and water.** Formation is effected by an induced suction created by a difference in the liquid level maintained on the inside of the cylinder as compared with the level outside the cylinder. Control of formation is obtained by baffled compartments in the cylinder vat and the use of auxilliary units to guide the flow similar in purpose to the head box of the fourdrinier machine. The velocity of flow of the liquid volume as it comes in contact with the wire mesh is as important with cylinder operation as it is in fourdrinier operation.

The compartment of the vat in which the cylinder mold actually rotates, is built in the form of a circle to conform to the shape of the cylinder mold. The distance allowed for clearance between the wire mesh and this circle has a very definite effect on the quality of the formation. There exists quite a diversity of opinion as to the correct clearance between the circles and the wire mesh, and in practice this distance is usually determined by the average degree of slowness of the stock to be used in each mill. This writer found so much difference of opinion on this important and interesting feature of cylinder machine operation, he decided to build and rebuild circles to find out what it was all about. The results of these experiments will be dealt with in the succeeding articles.

The direction of rotation of the cylinder mold, whether **towards** or **away** from the direction of flow, has also a marked effect on the formation of the sheet and the physical tests.

Each cylinder mold with its couch roll to press the sheet away from the mold, is designed as a **complete papermaking unit.** The lamination of these separately formed sheets into one sheet of board demands a thorough understanding and fine control of furnish proportions and stock treatment.

Although many attempts have been made, there is as yet no satisfactory mechanical device for the cylinder machine to perform the same duties performed by the "shake" on the fourdrinier machine. As a result, a cylinder sheet is apt to show "grain" more distinctly than a fourdrinier sheet. To offset this objectionable feature, "flow guides" of many designs, each according to the individual ideas of the mill superintendent, are introduced into the vat and even placed in the vat circle.

What is sauce for the goose is not always sauce for the gander in papermaking, and the effectiveness of these devices is sometimes greatly depreciated by a change in stock furnish or treatment.

The mechanical operation of fourdrinier papermaking has been made easier by the development of the suction couch roll, thereby eliminating many of the "couching" problems.

In cylinder operation, the couching problem is intensified by the cumulative effect of couching each successive sheet, from each cylinder mold onto the preceding sheet.

The type, diameter and weight of the couch rolls, also the applied weight to each couch roll, all have direct bearing on the quality of the formed sheet.

Removing water from the newly formed paper web by pressure is a delicate operation on any type of paper machine. The cylinder machine, because of heavy basis weight, must use a top as well as a bottom wet felt, intermediate presses, baby presses, water slices, all requiring adjustment to the particular grade of paper to be made.

The kind of press rolls to use, the diameter, the crown, the amount of pressure to apply, all must be decided by the position of the press rolls on the machine.

Despite the multiplicity of presses, the operation is still just that of removing water from a paper web with a felt acting as the carrying and receiving medium.

Whether we are making paper with a hand mold, a fourdrinier machine, a cylinder machine, or a combination of both, the fundamental principles are the same. The mechanical application of those principles, the tricks of the trade which can be used to give us a more flexible control, are the reasons for diversity of opinion. Of course, that is papermaking.

Papermaking Problems

Answers to Questions

By HARRY WILLIAMSON

Mr. Williamson has received volumes of letters from readers of THE PAPER INDUSTRY asking him to solve specific problems encountered in their respective mills. Many of these and their answers will be published and appended to the regular monthly lesson in each issue. Identification of mills or individuals asking these questions will be deleted from the text.

Formation of Bristol Board on Fourdrinier

Question—I am attaching a sheet of bristol board which we are going to make on a fourdrinier and I was wondering if you would mind giving me a little information on the subject.

This is about 50 per cent rag index and is to be made solid and I want to get as good a formation as we possibly can and yet not pick up on the first press and be fuzzy. We have a 60-ft. wire and suction couch and the regular slices. Do you think that if we used some of the fingers, such as you suggest in your lectures, it would help our formation any? We have made solid index before but had trouble with it being a little lumpy and getting a satisfactory finish on the top side.

Answer—Your query regarding formation on heavyweight index to be answered at all must be dealt with at some length. Flocculation or massing together of extremely long fibers will not be present in your case. Moreover, you can cut your fibers, as you do not have to meet such excessive strength tests.

The heavier the basis weight, the lighter the consistency

delivered to the jordans. This is obtained by delivering a stream of water with the stock at the jordan head box.

The effect is to shorten and soften the fibers without producing excessive hydration. If the fibers are heavily hydrated, a resistance to the wire drive will be created on the flat boxes greater than the drive itself and the wire will stall.

If the fibers are too short and too free, the sheet will pick at the first press and fuzz at the calenders.

For purposes of discussion we would divide the degree of hydration into four parts: very free, free, slow, very slow; the length of the fiber into very short, short, long, very long.

With this division we would recommend from free to slow, and from short to long, according to the possibilities of picking and the strength tests required.

Picking will be greatly prevented and formation greatly improved if the sheet can be run under the dandy wet with free water and not the water of hydration.

As a practical guide, please note the following. We have six flat suction boxes on our machines. When we run heavy index, we disconnect and drop two after the dandy. The valve for one of these we use as a breaker to the suction header, as the ordinary breaker installed is not big enough to lessen the tremendous resistance to the wire drive. As a consequence we register only three to five inches of vacuum on the boxes. This is enough to prevent picking.

The boxes before the dandy, are throttled to permit the sheet to run wet under the dandy. The volume of water used to obtain complete separation of the fibers before they reach the slice is important. (See page 45 of Part I—Lessons in Papermaking). The flow speed will have to be controlled, however, so that it does not rush onto the wire.

In the samples sent under separate cover you will notice the buff is of poor formation. We had no time to put on a short apron; consequently, this sheet had too high a delivery speed owing to the fact that after the slice had lost control of the mixed volume, the apron with its smooth surface delivered the sheet at a fast speed to the wire.

An apron cut slightly behind the second slice is best for an index sheet.

Now in relation to the use of fingers.

Any such guide can be used providing the area of the surface presented to the flow is greater than the length of the longest fiber used. For example, if you hold a piece of fine wire in a flow of groundwood fibers, the wire will at once accumulate lumps. In the same flow hold a piece of wood one inch square and there will be no lumps formed. If the flow is sluggish, that is insufficient water is used in the mixing, fingers will not guide the fibers at all.

We use a rack on our index but the vital point is we use a bigger volume of water than the flow speed requires and then use gates and dams to prevent the flow speed registering on the delivery to the wire.

This, of course, leads us back to the degree of hydration. The greater the hydration the less the volume of free water we can use.

Cost Accounting in the Paper Industry

Part XX—Job Order Cost Systems

By D. A. WILCOX

SO far we have considered a cost system without any departmental distribution of the mill and based entirely upon estimated costs, and a departmental system wherein the hourly rates used are the average costs of operating that particular center for the previous month. We shall now consider what is known as the "Job order cost system" which is based on evaluating the actual time taken to make various orders, but in which the value of the time is based upon standard rates.

In its most simple form this is an attempt to value the time elapsed at an average cost wherein the average covers a long period in advance. The benefits received from this lie largely in the fact that such an average contains all the various elements of expense, some of which occur but infrequently, and spreads these expenses evenly over all the periods of operation. In order to set the rate we usually make estimates of the total cost to operate the department for a year in advance, basing our estimates to a large degree on past experience, but modifying this as we think best based on current prices and our ideas as to what would constitute correct operating efficiencies.

Such a standard system of "burden rates" would then be based upon our annual estimates of expense, as stated above, and these expenses would be divided by what we consider to be the normal number of hours (or other units) which we think the department will operate that year. The quotient, so secured, would be our "burden rate" and would be used to value the elapsed time which is actually used by every order going through the department.

Unearned Burden

As we estimate the elasped time in advance we will base these estimates on the quantity of time which we believe the center should operate during the year. This is termed the "normal" operating time and may exceed the time which is actually operated. Basing the estimated time, as we should, on the total amount which the center should operate during the year we find that, if through reason of lack of orders or otherwise, the center is down any time the value of such time down is a loss due to the market conditions, or other causes which brought it about, and is not to be considered as an additional expense of the orders which happen to be made during that period. Thus, instead of charging the value of such time to the orders it is charged off directly to profit and loss and is known as "unearned burden," or "unabsorbed burden."

With this in mind we can set our burden rates and charge the orders with the hours actually used in production and charge off any balance as a loss to the profit and loss account, and this is what is done.

Burden Variances

In setting the burden rates we base them entirely upon estimated costs. In actual operation, however, it will seldom happen that the actual expenses ex-

actly equal the estimated expenses. If, however, we have used care in making the estimates and are assured that they include all the elements which ought to go into the costs if any items come up in excess of these, they are marks of some sort of inefficiency or accidents and should not be considered a part of the cost of the product. They are, therefore, also charged off, as is the unearned burden, and we still find that a fair cost is secured by charging the orders with the elapsed timed used on each and valued at the standard rate per hour. All of this has been fully explained in earlier chapters, together with the methods of setting the standard rates, but a brief review is necessay before going into the matter of arriving at "Job order costs."

Requirements of a Job Order System

In order to operate a job order system the following elements are necessary:

1—A means of identifying each and every order from the time of its inception to the time it is finally shipped or otherwise disposed of.

2—Means of securing the value of direct materials which go into each order.

3—Means of securing the elapsed time for each operation put on the order.

4—Means of evaluating the elapsed time.

5—Necessary report forms whereby the elapsed time and direct materials are reported to the office so that they may be assembled to calculate cost of the order.

6—Checks in the office and the mill to reduce, as far as possible, errors.

Order Numbers

In order to operate a job order cost system it is necessary to follow each and every order from the start to the finish and to record against it every item of direct materials used on it and every period of elapsed time spent on it in each department. As the reports on the materials and time come into the office they are posted to the record of the particular order and the cost built up until the final operation—shipping—is reported and the final cost of the order can be determined.

It may be thought that it is unnecessary to do this for every order—that certain ones may be grouped into grades or classes and costed together, thereby saving considerable time and effort. The great objection to this is that it puts too large a peak load on the office at the end of the month and unduly delays getting out the monthly statements. As no order can be calculated until the final operation is reported, and as when a number of items are grouped together, the office has no way of knowing whether or not more items will go through during the month, they are unable to close out a cost sheet until the month is finished. This, in turn means that all cost sheets have to be held open until the end of the month and then costed at once, which is very impracticable.

It is therefore advisable to follow each order separately and close them out continuously during the month. Now the question may arise, what consitutes an order? Every item which varies from any other item, either by size, weight, color, or any other essential charactertistic must be considered as a separate order. Thus, if a requisition comes in for four items of the same grade of paper, but differing between themselves by being four different sized sheets, or four different basis weights, then we should consider this to be four separate orders.

The simplest means of identifying an order in its course through the mill is by means of an order number. Order numbers usually start with number 1 at the first of the year, starting a new series each year, or whenever the numbers reach 9,999. It is advisable to keep the number of digits down to a minimum so as to avoid, as far as possible, the chances of errors in copying them into reports. In order to identify the particular year the numbers may be prefixed with a letter, thus "A-1093," the letter "A" indicating the year 1930, "B" 1931 and so on.

Systems have been tried out whereby the numbers constitute a code system, thus the first digit, 1 or 2, would represent M.F. or Super, the second digit the method of packing, the next two the grade, and so on, but such a system results in tremendously long numbers and adds considerably to the possibility of errors in reporting. They are not very practical actual operation.

In order to further identify the orders and to make sure that all the items of a single requisition are assembled properly when shipped, it is further advisable to have the tickets and other means of identification carry both the order number originating in the mill and the customer's order number. Thus the paper machine instruction sheet would bear the numbers: "Order number A1093—Customer's number Y-6739."

Direct Materials

Of all the complicated problems of cost accounting robably few equal or exceed that of applying the actual costs of the direct materials which should go into a particular lot of paper. Between the putting of materials into the beaters and the shipping out of the finished paper so many operations occur which divert materials this way and that, that to say just what materials the finished paper actually carries out of the mill with it is a problem indeed.

In the first place, unless we were to have an absolutely closed system wherein there was no loss of stock and all the furnish placed in the beaters eventually appeared as rough paper in the very order for which it was intended, and all the broke made in the finishing room went back into the beater in the same order, we cannot secure an absolute tie-up between beater furnish and finished paper. Of course

such a condition is impossible. We are sure to have some loss of stock. There is seldom a clean cleavage between orders unless there be a drastic change of colors so that the beater chests are seldom completely emptied between orders and some of the materials put into the beaters for one order are still in the beater chests at the end of the order and get into the next one; the loss of stock varies as between orders and the materials recovered on the save-alls or whatever devices are used to reduce loss of stock) goes to other orders and frequently to other machines); machine broke may not get back into the particular order on which it was made, and finally by the time the order is being finished and the finishing room broke is being made it has finally left the machine and this broke must necessarily go into other orders. In the same manner as an order loses materials to other orders it picks up, possibly—and possibly not—equivalent amounts from other orders. However, be that as it may, it will be readily recognized that to attempt to follow the course of the direct materials through a paper mill and ascertain just what materials go out of the door with the finished paper and thus charge the particular order with these quantities would be a Herculean task, if it were possible at all.

We must therefore find some means of cutting corners and make certain assumptions which will be at least reasonable, and thus develop a method of applying the **known** facts so as to charge the individual orders with reasonable amounts for direct materials and at the same time afford checks on our assumptions to warn us if they go far out of line with actual conditions.

Lessons in Steam Plant Practice

Lesson X—Pulverized Coal (Pulverizing and Sampling)

By J. CHARLES RYDER
Champion Fibre Company, Canton, N. C.

This is the second of a series of eight lessons on the subject of pulverized coal equipment and firing. These lessons in Steam Plant Practice are being published in THE PAPER INDUSTRY by arrangement with the Champion Fibre Company, Canton, N. C. They are a part of the general educational course conducted by this company under the direction of J. Norman Spawn, educational director.

As stated in lesson No. 9 the coal dumps from the weigh scales into a chute (Fig. 31), thence over the feed roll into the pulverizer.

The feed rolls at the pulverizers are driven by a one hp. variable speed, direct current motor, with a speed range of from 400 to 1,000 r.p.m. driving through a reduction gear box and controlled by a rheostat on the operating board. When the rheostat starter is on the zero notch, the feed roll will run 8 r.p.m. and 12 r.p.m. on the first notch, 16 r.p.m. on the second notch, and so on up to 8 notches. Each mill or pulverizer has a capacity of 12,000 lb. per hour, or a total of 72,000 lb. per hour for the six mills. They are now operating at an average of 8,500 lb. per hour each.

The mills are Raymond Impact No. 90, driven by a 200 hp. Westinghouse A.C. direct connected motor (Fig. 32). These mills rely upon impact and attrition for pulverization. Each mill has 48 hammers on the rotor (A in Fig. 32), four in a row, and 12 rows.

These hammers can be set out in different holes as they wear off on their tip. There are three sets of holes and by turning the hammers over in each set we get six adjustments.

At present we are averaging 100 tons of coal pulverized per hammer.

Air is the medium used to remove the pulverized coal from the pulverizing chamber, and it controls the fineness of the pulverized product within certain limits. A current of pre-heated air (later this will be called primary air) enters the mill at about 425 deg. Fahr. mixing with and drying the coal, making pulverization easier. The air keeps the pulverized coal in suspension and carries it from the outlet (B in Fig. 32) on top of the hammer chamber into the classifier (C in Fig. 32). In passing through the classifier (Fig. 33), the coarse particles of coal are separated from the mixture and returned through an inner cone feed roll (A in Fig. 33) at the classifier bottom, to the mill for further pulverization.

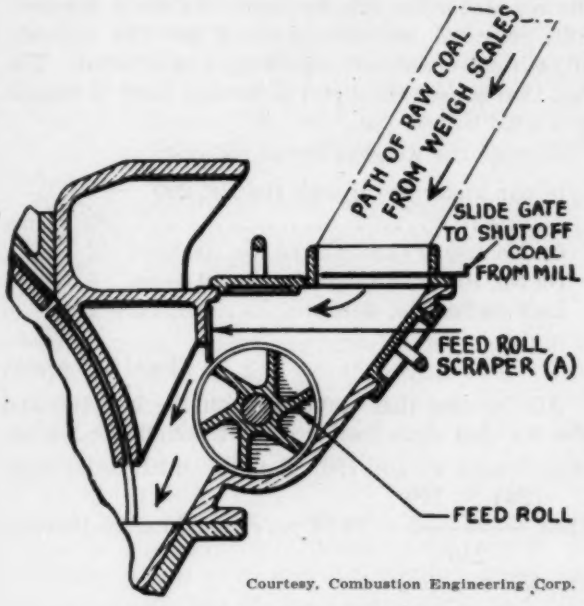
From the classifier, the coal and air mixture passes through a pipe (D in Fig. 32) to the exhauster fan (E in Fig. 32) which delivers it through piping to the burner. This type is attached at (F in Fig. 32).

In operation, our coal ranges in moisture from 3 to 10 per cent. The coal feeds good up to about 6 per cent; above this, the teeth in the feed roll (Fig. 31) fill up, making feeding difficult when the incoming coal runs fine.

Ordinarily, we run with the hot air damper open about eight inches. This damper is in a 24-inch pipe. As stated before, the hot air enters the mill with the coal at 425 deg. Fahr. and when feeding wet coal, the hot air damper should be open to keep the mixture of air and coal at 150 to 175 deg. Fahr. A recording thermometer bulb is in the line from the

exhauster fan to the burner and the instrument is on the operating board.

There is an operating limit of how much hot air



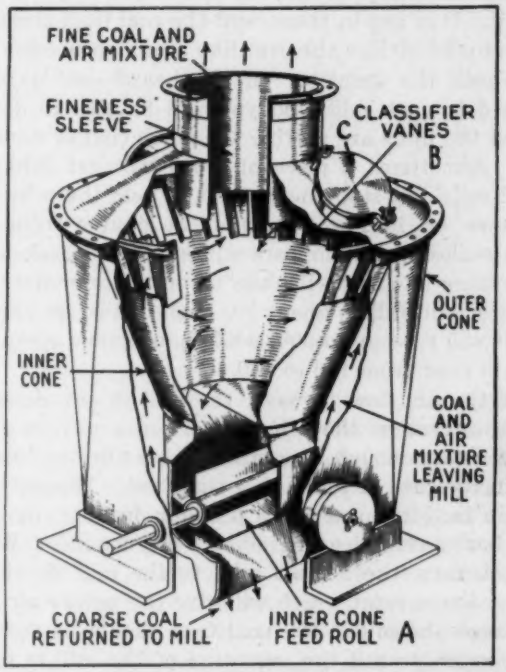
Courtesy, Combustion Engineering Corp.

Fig. 31—Sketch showing feed roll on pulverizer mill

goes into the mill and at times it is difficult to get 150 deg. Fahr. mixture of coal and air.

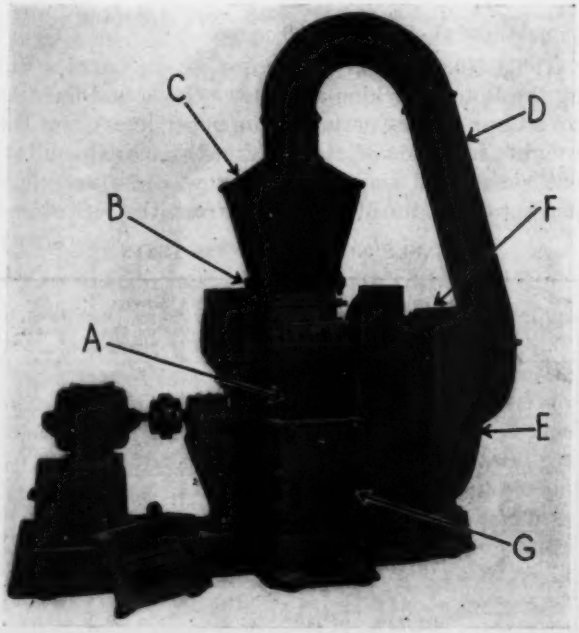
This hot air is delivered from the forced draft fan, through the air pre-heater, and is called primary air at the burners. If the primary air predominates over the secondary air in the furnace, the flame will impinge on the back wall and plaster it with ash. This must be avoided, not only on account of the ash, but it will overheat those spots on the wall not covered with ash and might burn a tube. Therefore, it is necessary at times to accept a lower temperature leaving the mill.

Wet coal makes a tedious operation all around and there are times when it looks like the fire will go out in spite of everything that can be done. One of the



Courtesy, Combustion Engineering Corp.

Fig. 33—Sketch showing operation of classifier



Courtesy, Combustion Engineering Corp.

Fig. 32—Unit system mill with door of grinding chamber removed to show hammers

principal causes is wet coal going into the mill in slugs and delivering it to the furnace the same way, causing the induced draft to surge all through the boiler. These undulations cause a puff-out at the burner tubes and explosion doors one instant, and the next the induced draft will swing to minus—one inch, sucking the fire out. The only remedy is, do not crowd the mills when running wet coal, and if one mill is idle put it on and run all at a lower feed rate. If the coal is fed too fast when wet, it will choke the mill down in the pulverizer chamber, or classifier, or both. When this happens, shut down the mill, open the lower clean-out door (G in Fig. 32) and dig the coal out.

By careful operation this condition can be avoided.

On the other hand, when the coal runs dry, there is no difficulty in keeping the temperature of the mixture right, and at times it is necesary to open the cold air damper to hold the temperature down. When opening the cold air damper, adjust the hot air accordingly in order to have the correct amount of primary air to carry the fuel over to the burners.

Frequently, the vanes (B in Fig. 33) in the classifier get stopped up when running dry or wet coal, because the people who ship the coal put old sacks, hay, excelsior and straw in the cars to stop coal leaks. This stuff will come through and plug up the classifier vanes. An indication of this is when the coal dust blows out the cold air damper and around the feed roll; at the same time, the ammeter will show excessive load. To remedy, cut the coal feed off, remove the hand-hole cover (C in Fig. 33) on top of the classifier, roll up your sleeve and reach in and get it. It is hot in there, and the coal dust circulating around strikes the arm like a million needles.

Watch the ammeter on the board—one is connected to each mill, and you will be able to detect when the mills are getting too much coal or none at all. Sometimes a piece of wood will get into the feed rolls and stop the coal; it is held there by the scraper (A in Fig. 31), and the chutes from the coal scales to the hoppers will stop up occasionally. Anything like this will show up on the ammeter; the pointer will fall to about 50. If the mills get choked up it will read up to 300, while in ordinary operation it will read from 100 to 150.

If the air flow through the mill is cut down to such an extent that the pulverized coal is not removed fast enough, the mill will become overloaded, as in the case of too high a coal feed. The mill will begin to slow down and a peculiar droning sound in the beater chamber will indicate this condition. When this occurs, the hot air inlet to the mill should be opened to a point which will give the proper air flow through the mill. The coal feed should be reduced temporarily until the operation of the mill is again back to normal.

If the moisture content of the raw coal varies over wide limits on different days, it will be found that the maximum capacity at which the mill can be operated without overloading will vary. Wet coal reduces the mill capacity very rapidly and the mill rating will vary over different days as the moisture of the coal varies.

The degree of fineness can be controlled within certain limits, by reducing the amount of air to the mill. The term "fineness" means the percentage of coal that will pass through a certain series of test sieves. These sieves are about nine inches in diameter, and two and one-half inches deep, with screen wire on the bottom. We use 40, 100 and 200 mesh screen, which means there are 40, 100 and 200 openings in each one square inch of the wire. From now on, we will designate the sieves as No. 40 and so on.

The sieves stacked one above the other, No. 40 on top and No. 200 on the bottom are clamped in a motor driven machine, having a rotary movement and a tapping arrangement, with a time switch so that each charge put in the sieves can be run a definite length of time. We run all samples fifteen minutes.

When the pulverized coal sample is received, it is put on the No. 40 screen. The machine is clamped up tight to prevent leaks, the time switch is set, and the machine started. After running fifteen minutes, the machine automatically stops; the sieves are carefully removed, emptied, brushed, and the contents of each sieve weighed separately and totalled. The fuel that passed through the No. 200 sieve is caught in a solid bottom pan.

Suppose the weights are as follows:

In pan under or through the No. 200 sieve	196	grams
On No. 200 or through the No. 100 sieve	32	"
On No. 100 or through the No. 40 sieve.	6	"
Left on the No. 40 sieve	1	"
Total	235	grams

All the coal that went through the No. 100 and the No. 200 sieve had to come through the No. 40. Accordingly we add 196, 32 and 6 which equals 234; then $\frac{234 \times 100}{235} = 99.57$ per cent that came through the No. 40 sieve.

For the No. 100 sieve, take 32 plus 196 equals 228, and $\frac{228 \times 100}{235} = 97.02$ per cent that came through the No. 100 sieve.

For the No. 200, simply multiply 196 × 100 and divide by 235, thus $\frac{196 \times 100}{235} = 83.4$ per cent that came through the No. 200 sieve.

Table No. 1 shows the record of six samples run by the Rotap machine and shows the actual fineness covering a week's period. The upper lines show the weights in grams of coal passing through the different sieves and immediately below these are their percentages; the fifth column from the left shows

TABLE NO. 1—FINENESS TESTS

Mill Number	Through Sieve No. 200 Grams	Through Sieve No. 100 Grams	Through Sieve No. 40 Grams	Grams on No. 40 Sieve	Total Grams
1	196 83.40%	32 97.02%	6 99.57%	1	235
2	186 65.04%	85 94.75%	13 99.30%	2	286
3	223 64.82%	100 93.89%	19 99.42%	2	344
4	257 70.41%	75 90.96%	29 98.90%	4	365
5	244 62.72%	110 91.00%	31 98.97%	4	389
6	196 59.94%	113 94.49%	16 99.33%	2	327

what was left in each case on the No. 40 screen; the last column is the total grams of the samples submitted.

No. 6 shows the hammers are pretty well worn and will probably be turned and set out a hole on the next shut down, because 59.9 per cent through a No. 200 screen is getting too coarse and causes sparklers in the furnace, with their attendant loss of carbon either in the cinder pit or out the stack. No. 1 had new hammers installed the previous week-end.

By watching the fineness, we can tell what mills are in need of repairs and adjustments, and what to do when they need work done on them.

The Method of Getting the Sample

To a vacuum cleaner bag attach a plate of iron to fit connection on the bag. In the center of this iron, drill and tap a hole to attach a piece of ¾-inch tubing, slightly bent at the outer end, with graduations one inch apart filed on the tubing (Fig. 34). A 1¼-inch pipe plug is removed from the pipe connecting each pulverizer with its burners and the tubing is slipped in with the bent part towards the direction of flow of air and coal mixture on its way to the burners. The 1¼-inch bushing on the tubing is screwed into the plug hole, and the tubing is pushed against the inside far wall of the pipe. The gate valve is then opened and held for one-half minute, then the tubing is pulled to the center of the pipe, using the graduations to determine the correct distance, and held for one minute. It is then pulled to the near wall and held for one-half minute. This is done twice on each pipe, the second is taken at right angles to the first, giving six points of collecting for each pipe. There are two pipes from each mill, and six per boiler. The sample is transferred into a quart jar by removing the plate connection from the bag, placing a large funnel in the jar, turning the bag over and pouring the coal in the jar. Usually, we collect about two-thirds of a quart jar, such sample being about right to fill the test sieves.

Pulverizer Mill Operation

Wet coal has a tendency to ball up and form coarse particles after pulverization. This usually results in delivery of a product by the mill, the average fineness of which will be lower than that of the coal actually pulverized. Different degrees of fineness will be obtained by soft or hard coal, dry or wet coal. The degree of fineness to which a coal should be pulverized is a matter in which the type of burner equipment and furnace design are the controlling factors. Large furnaces in which a high degree of turbulence can be obtained operate more successfully with coarse coal than can small furnaces, or those in which there is a slight degree of turbulent mixing of air and coal. In our furnaces, if 60 to 65 per cent goes through a 200 mesh screen and about 95 per cent through a 100 mesh screen, we get good results. However, a study of the relationship of the fineness of pulverized coal to the resulting furnace losses, must be made in each unit before establishing the limit of fineness to be obtained in regular operation.

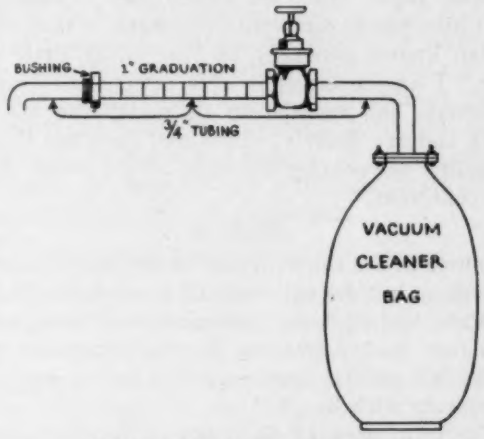


Fig. 34—Pulverized coal sampler

Increased fineness results in lower mill capacity and, at the same time, larger power consumption rates per ton of coal pulverized.

From the standpoint of mill operation, the lowest degree of fineness of the pulverized coal that can be burned efficiently will give the best results from the mill. We average 25 kw. of A.C. power per ton of coal pulverized. This is not high power consumption when we consider the exhauster fan is driven off the same rotor shaft driving the pulverizer. Then, too, the structure of the coal is harder than most bituminous coal. Each pulverizing mill serves two burners.

Examination Questions

(1) What current is used to drive pulverizer feed rolls, A. C. or D. C.?

(2) What current is used to drive the pulverizers, A.C. or D.C.?

(3) What medium is used to remove the coal from the pulverizer chamber?

(4) How does the coal and air mixture get from the classifier to the burners?

(5) At what temperature should the coal and air mixture leave the exhauster fan?

(6) (a) Where does the primary air come from? (b) Where does the secondary air come from?

(7) What would you do if the flame was plastering the back wall and the thermometer showed 140 degrees Fahr.?

(8) What do the ammeters on the board tell you?

(9) What will cause the mills to vary in capacity from day to day?

(10) What is meant by the term "fineness" of coal?

Bolivia and Paraguay Paper Trade

By WILBUR T. GRACEY

IN former articles of this series I have treated of the paper trade of Argentine, Uruguay and Chile, and to complete the general survey of that section known generally as "the River Plate countries," I am covering in this article the trade of Paraguay, and associating therewith the other interior country Bolivia, which will complete the data regarding the southern section of the South American continent.

Bolivia

Bolivia is the third largest of the South American republics, but being without a seacoast—bounded by Peru and Chile on the north and west, and by Paraguay and Argentine on the south—its direct trade, and general development is by no means commensurate with its size.

The total area of the country is about 500,000 square miles, the population 3,000,000—only five persons per square mile. Of these, some 65 per cent are Indians—mostly civilized but uneducated—engaged in agricultural pursuits. There are approximately 500,000 people of mixed blood, "Cholos," and about 250,000 whites—8,000 to 10,000 being "foreigners."

Owing to the differences in the altitudes between the Amazon region and the high central plateau, 500 miles in length, 12,000 feet in height, the climate is variable.

The country is, primarily, a mining one, with extensive production of gold, silver, tin, copper, antimony, lead, bismuth, wolfram and crude oil. Over $2,500,000,000 worth of gold has been taken out of Bolivia and the annual production is about $350,000. In addition, millions of dollars worth of other minerals are extracted, and a quarter of the world's output of tin is produced there, and with improved transportation facilities will increase.

Bolivia is, as a consequence, a wealthy country, and also has extensive production of rubber, sugar and quinine; while wool and hides are prominent exports.

Communication is largely by river, there being 12,000 miles of navigable waterways, besides 1,250 miles of railways in operation, with 2,000 additional miles projected or under construction.

The Government issues no official data regarding consumption and it is necessary to depend upon estimates, which are always unsatisfactory.

Some idea of the use of writing paper may be gained from the fact that the postoffice handles about 5,000,000 pieces of mail annually, and the handling of mail has recently been improved by the very excellent connections with remote and inaccessible regions by airplane services.

The Fabrica Nacional de Papeles y Cartones, a large factory established in 1918, manufactures cardboard, strawboard and other similar products to the extent of about 5,000 pounds per day, taking care of about half of the demand.

The statistical data being somewhat confusing, it is only possible to state that in the past Great Britain has been the principal source of supply of imported boards, followed by Germany and the United States.

In La Paz, the capital, a city of 150,000 population, five newspapers are published which circulate generally throughout the republic, and daily papers are also published in other large cities, Sucra, Oruro, Potosi and Cochabamba.

The latest available Bolivian statistics give the imports of writing paper in 1927 as 152 tons, valued at about $110,000.

The exports for last year from the United States, according to preliminary statistics supplied by the Department of Commerce, and subject to revision before final publication, were as follows:

Newsprint	$ 83.00
Book paper, coated	2,234.00
Greaseproof and waterproof	389.00
Wrapping paper	1,882.00
Paper towels and napkins	13.00
Toilet paper	963.00
Boxboard	224.00
Bristols and Bristol board	265.00
Other paperboard and strawboard	270.00
Wall board of paper or pulp	905.00
Blotting paper	850.00
Writing paper	14,774.00
Paper bags	1,486.00
Boxes and cartons	228.00
Envelopes	572.00
Papeteries (fancy writing paper)	31.00

These figures do not by any means represent the total import of American paper products, as considerable paper originating in the United States and Europe is purchased from dealers in Peru and Chile, entering Bolivia from those countries, and appearing on the Peru and Chile statistics, while additional amounts come from the Argentine by rail.

The printing industry of Bolivia has never become important, as in the adjoining countries, and may still be considered in an undeveloped state. Many of the people are illiterate, consequently the demand for books, newspapers and magazines is limited. Improved schools, and compulsory education are, however, increasing the demands.

The most important La Paz newspapers either

purchase their newsprint locally from distributors, or import direct, sometimes from Europe, but usually from Chile distributors. The annual consumption of newsprint approximates 1,500 tons, about half being locally produced and the balance imported.

Uncoated book paper comes, usually, from the United States, but the value is only about $2,000 annually. The principal product which we supply is writing paper, of which we ship about $15,000 annually. This usually is in sheets 65x100 centimeters in size, weighing 54 grams per square meter.

Typewriter paper is not extensively used, but the trade is increasing with the more general use of typewriters. It is usually imported in boxes and used by the better class business houses and foreign residents.

Kraft wrapping paper is imported from the United States in small quantities, but in late years Germany and Scandinavian countries are securing the trade from us. The principal wrapping paper demanded is a cream colored sulphite of moderate strength. This is usually in sheets 34x45 centimeters in size, weighing about 25 grams, packed in 20 bundles to the bale, each bundle containing 200 folded sheets. They are wrapped in waterproof paper, baled in burlap and hooped with iron.

Bags are being used but there is no large industry calling for them. They are produced locally, and a certain quantity imported from Germany. They are of the square-bottom type holding from one to 25 pounds. There is a possibility of securing some of this trade if American manufacturers can meet the German price quotations.

Boards come almost entirely from Germany, due to lower prices. The imports are decreasing as a result of increasing local manufacture. The call for wall boards is very small as local buildings are built of adobe, roofed with local-made tile. Some of the better class homes use wall paper, but the trade in this commodity is not, and probably never will be large.

In the specialty line the trade is undeveloped. There is little call for fancy or glazed papers, and waxed paper is not sold in any quantity, owing to the fact that most food products which might be wrapped, are imported. There is a small demand for paper cake plates, but most of these are supplied by the local mill. The sale of imported boxes and cartons has decreased since the opening of the Fabrica Nacional.

Foreign Paper Handled by Importers

Imported paper is brought in almost entirely by local importers. There is not sufficient trade to warrant a firm's dealing entirely in paper or paper products. Some of the larger stationery stores import direct, purchasing from traveling salesmen, or from agents located in Chile, Peru or the Argentine. Products are bought largely on a price basis, and in quoting for this, market prices should be given c.i.f. Arica, Antofogasta, or Mollendo. The local merchant can better figure the costs from the coast than can the exporter in the United States. Shipments will be made by one or the other of the east or west ports and as Arica, Chile, is the nearest port, and has direct rail connections, most of the business comes through that port.

At Arica, unloading of cargo has to be made in an open roadstead, necessitating careful packing and all cases should be protected by waterproof linings, or coverings. Cases are preferred to crates, as oftimes such packages are exposed to heavy weather for hours, or perhaps days. Iron strapping is also advisable owing to heavy handling.

Growing Interest in Education

The subject of public education is receiving marked attention in Bolivia during recent years, many new rural schools have been established and in La Paz there are several new educational institutions, as well as improvements and enlarging of schools and colleges. There is a national university in La Paz, and recently schools of commerce, engineering, mining, agriculture, arts and crafts, etc., have been established. The American Institute also occupies an important place in the educational field.

As a natural consequence of this increasing interest in education, the paper trade will, in time, undoubtedly grow.

At present Spanish language magazines and books from the Argentine, Peru and Chile enter Bolivia, and the Bolivian paper trade is thereby affected, there being no necessity for a printing of local products other than newspapers. Also owing to the superior opportunities for printing and lithographing in these countries, much of the better class of printed work is imported in a completed state.

Paraguay

Paraguay trade, is in many ways similar to that of Bolivia. Located to the south of Bolivia, and adjoining the Argentine, much of the paper trade comes through the latter country, or from Uruguay by river.

Paraguay has an area of 176,746 square miles, with a population of 800,000. Approximately 65 per cent of the area is in forests and the balance largely agricultural and pastoral. About a quarter of the population is Indian, the balance Mestizos (mixtures of natives with the original Spanish settlers).

Asuncion, the capital, has a population of about 150,000; other cities of importance being Villarica with 45,000; Concepcion with 35,000; Encarnacion with 33,000; Luque, Carapegua and Villa de Pilar with 15,000 each.

With a small population there is only a moderate call for paper, or paper products, but owing to the

fact that there are no paper factories in the country, all of the goods required must be imported.

Data regarding importations is difficult to secure, as most of the goods come from the Argentine or Uruguay, and Paraguay publishes no official statistics. The imports appear as Argentine or Uruguayan products, though in reality most of them emanate from Europe or the United States. It is estimated that the total imports of Paraguay are approximately 350,000 pounds of paper products per annum.

Newsprint comes almost entirely from Europe, imported in sheets 81x116 centimeters in size, weighing about 22 kilos per ream. Ordinarily this is packed in bundles a foot thick, fastened with metal straps. The leading newspapers get their stock direct from Buenos Aires, while the smaller ones buy from local wholesalers, who distribute to the outlying cities.

Very little book paper is called for, as Paraguay depends upon the Argentine for its Spanish books and magazines. Catalogues are seldom issued by local houses and when required are secured, already printed, from Buenos Aires or Montevideo.

In the writing paper lines, bonds and linens of the better grades are seldom in demand, the entire call being for cheap grade products. Few of the business or professional houses use typewriters, and there is, as a consequence, little sale for carbon or typewriter papers. Press copybooks are in general use.

There is a small demand for boxed note papers by the better classes, but the paper ordinarily used for correspondence is thin and of low grade, often ruled, sometimes with margins, and sold in pads or blocks. This is imported in sheets 72x110 centimeters, packed in bundles or bales, well protected and strapped. The price ranges from 30 to 50 cents per kilo.

Wrapping paper and bags are also of the cheapest and thinnest quality. This trade is growing and has increased continually for the past ten years. Some kraft and manila wrapping paper is sold, but in the country districts old newspapers or palm leaves are still used for wrapping purposes.

European countries supply the wrapping paper imported, as their prices are usually lower than those from the United States. The bags sold are mostly very cheap and of local manufacture.

The board situation is somewhat similar. There is no demand for high grade goods and practically all of the high grade work of this kind is done in the Argentine.

The printing trade generally in Paraguay may be considered an infant industry. There seems little probability of its improving in the near future, owing to the proximity of the Argentine and the excellent printing available there.

Because lumber is cheap and plentiful, there is no sale for wallboard or plaster board. One local factory produces boxes and cartons and takes care of two-thirds of the demand. The balance is supplied by small printing establishments. The factory produces about 50,000 kilos of boxes per annum. As a result there is a certain call for boxboards, strawboard, etc., but as there are no important industries using boxes, the demand is confined to the local stores. Imported boxboards are mostly of the cheaper grades of yellow strawboard, or gray or white chip board. Heavy boxboard is imported in bales of 250 bilos, packed in light wooden crates, white boards being in waterproof lines cases. Heavy board comes in sheets 70x100 centimeters in size, 5 to 50 sheets to the kilo.

In the specialty line there is a small demand for drawing papers, price being the important factor.

Distribution

Stocks of papers are carried in Asuncion by a few local distributors who purchase either directly from abroad or through houses in Buenos Aires or Montevideo, mostly from the latter sources.

Manufacturers interested in this small market should communicate directly with dealers in Paraguay, sending samples and quotations, c.i.f. if possible. Cash against documents is usual in Paraguay trade until the dealer becomes known. Correspondence should, of course, be in Spanish.

Our direct exports to Paraguay are so small as to be almost negligible. The Department of Commerce gives the following data for last year:

Writing paper	$1,072.00
Papeteries (fancy writing paper)	157.00
Envelopes	20.00
Blotting paper	70.00
Toilet paper	170.00
Greaseproof and waterproof	25.00
Wrapping paper	34.00
Boxes and cartons	35.00

These figures by no means represent the total value of American paper entering Paraguay. Much of that purchased in the Argentine and Uruguay is of American origin.

Paper shipped to Paraguay should be given stronger packing than if intended for Buenos Aires or Montevideo, as transhipment to river steamer is necessary and greater precaution is essential. All bundles should be double wrapped and have strong burlap covering with iron straps, as well as waterproof linings.

The American manufacturer of paper and paper products will probably not find either Bolivia or Paraguay highly important markets. Generally speaking, he will do better to confine his efforts in increasing his sales to the regular merchants of Chile or Peru, for second sale by them to Bolivia, or to the Argentine or Uruguay for Paraguay.

The salesman who has been visiting Buenos Aires and Montevideo, may touch at Asuncion and La Paz

and perhaps arrange for distributors there to buy from his agents, or representatives in the larger places.

The Daily Control Sheet for Paper Company Executives

By WALDO HUTCHINSON

THE purpose of the daily control sheet for paper company executives is to give an executive, day by day, the significant facts concerning his business. Such facts must necessarily be few, summarized in form, and in some cases approximated rather than a hundred per cent correct. If the picture presented to the executive is satisfactory, the report is noted and filed. If the situation, however, is disturbing, the executive will call for additional information on specific items so that he may readily change plans or policies.

The daily control sheet will naturally vary in form with the requirements of particular establishments, hence it is to be understood clearly that the form presented is merely a suggestive one, and it is expected that each concern will adapt the same to meet its own needs. Thus companies having pulp mills will show the significant facts about them in addition to the paper mill data as shown in the accompanying blank Daily Control Sheet.

The daily control sheet attempts to unite in a single form the facts concerning finances, orders and shipments, production and operations.

The information of a financial nature given is fairly well standardized and requires perhaps little comment. The blank calls for information concerning cash receipts, cash disbursements, bank deposits and balances, bank loans, accounts receivable, accounts past due, and the accounts payable. The accounts past due are given so that the executive may act quickly to save accounts which appear doubtful.

The production order and shipments section is designed to show the relation between orders received, goods shipped and goods produced. It is expected that the executive will establish a form, standard, or budget of what ought to be produced and what orders should be received and shipped daily.

In addition to this daily record, cumulative totals for these items are shown, which cumulative totals it is advisable to compare with the corresponding period of the previous year.

The information given under operations is designed to afford the executive some idea of machine efficiencies, shrinkages and broke percentages, as well as important excesses in the notably cumulative costs. If these items are unduly large, the executive will investigate the causes and suggest or work out corrective measures. There is also given the number of employees by occupation, both actual and in comparison with the standard, so that the executive may be able to note the effect of a rise or fall in production upon the number and character of the men actually employed. The number of men hired and discharged is provided for. If the number discharged is excessive, the manufacturer will probably call in his personnel man for an explanation.

It is expected that this daily control sheet will involve no new administrative machinery. The various reports will be sent in to the president's secretary or assistant, who can quickly assemble them on the regular form for submission to the chief executive. The entire operation of so assembling the facts should not take more than ten or fifteen minutes. The information relating to finances will be supplied by the general ledger accountant, cashier and credit man. The salesmanager, and shipping clerk will be responsible for the information concerning orders and shipments, the production manager, factory accountant and personnel man for the information relating to operations and production.

The daily control sheet is intended to supplement, not to supersede, the weekly analysis of the pay-roll, the weekly statements of purchases and of delinquent deliveries, of raw, processed and finished material on hand, and the monthly statement of assets and liabilities of earnings, and monthly analysis of sales, of material consumed, of factory burden, etc., and of cost variations.

It is also well to indicate items of particular importance by ringing them with a red pencil or other device to attract particular attention.

DAILY CONTROL SHEET

.....Company Date.....

FINANCES

Cash Receipts			Accounts Receivable		
Cash Disbursements			Accounts Past Due		
Deposited In Banks			Accounts Payable		
Bank Balance			Bank Loans		

PRODUCTION ORDERS AND SHIPMENTS

	Today			Month To Date			Same Period Last Year	
	Quantity	Value	% of Normal	Quantity	Value	% of Normal	Quantity	Value
Production								
Orders								
Shipments								
Unfilled Orders								

OPERATIONS

Av. Efficiency
Loss Of Stock %
Finishing Room Broke %
Time Lost
Remarks:

Costs—Cumulative For Month.
Report Only Important Excesses Over Budget.

	LABOR	MATERIALS	REPAIRS
Beaters			
Machines			
Calenders			
Rewinders			
Cutters			
Finishing			

Labor Turn Over——Month To Date

Total Employed
Hired
Discharged
Turn Over—% Per Year

A simple form whereby the essential figures can be presented daily for executive study

Current Thought by William Sibley

Quotations and Comments

ONE hundred years ago all England was tormented by a devastating business depression. During that time, 1830, Thomas B. Macaulay penned an essay in which he said:

"The present moment is one of great distress. But how small will that distress appear when we think over the history of the last forty years; a war, compared with which all other wars pale into insignificance; taxation, such as the most heavily taxed peoples of former times could not conceive; a debt larger than all the public debts that ever existed in the world added together; the food of the people studiously rendered dear; the currency impudently debased and imprudently restored. .....

"If we were to prophesy that in the year 1930, a population of fifty millions, better clad, fed, and lodged than the English of our time, will cover these islands—that Sussex or Huntingdonshire will be wealthier than the wealthiest parts of the West-Riding of Yorkshire now are—that cultivation, rich as that of a flower garden, will be carried up to the very tops of Ben Nevis and Helvellyn—that machines constructed on principles yet undiscovered will be in every house—that there will be no highways but railways, no travelling but by steam—that our debt, vast as it is, will appear to our grandchildren a trifling incumbrance which might easily be paid off in a year or two—many people would think us insane.

"We prophesy nothing; but this we say—if any person had told Parliament which met in perplexity and terror after the crash of 1720 that in 1830 the wealth of England would surpass all their wildest dreams, that the annual revenue would equal the principal of that debt which they considered an intolerable burden—that London would be twice as large and twice as populous, and that nevertheless the rate of mortality would have diminished to one-half what it then was—that stages would run from London to York in twenty-four hours—that men would sail without wind and would be beginning to ride without horses—our ancestors would have given as much credit to the prediction as they gave to Gulliver's travels.

"To almost all men the state of things in which they have been used to live seems to be the necessary state of things.

"We have heard it said, that five per cent is the natural interest of money, that twelve is the natural number of a jury, that forty shillings is the natural qualification of a county voter. Hence it is, that though, in every age everybody knows that up to his own time progressive improvement has been taking place, nobody seems to reckon on any improvement during the next generation."

With what accuracy the truth of one hundred years ago applies to the conditions of today. Macaulay, in writing of a century ago and with a mind imbued with the events taking place in his own country at the time of writing, could not have penned paragraphs more descriptive of our mental state were he living and writing now. Only in the past do we recognize that the prophesies of today are the realities of tomorrow. We have ever progressed only under the handicap of stunted vision.

Nearly a century before Macaulay wrote his uncannily accurate analysis of twentieth century conditions in England, his philosophic and economic peer, Benjamin Franklin said:

".....There remain the merchants and storekeepers. Of these, though they make but a small part of the whole nation, the number is considerable—too great indeed for the business they are employed in; for the consumption of goods in every country has its limits; the faculties of the people, that is, their ability to buy and pay, being equal only to a certain quantity of merchandise. If merchants calculate amiss on this proportion, and import too much, they will of course find the sale dull for the overplus, and some of them will say that trade languishes.

"They should, and doubtless will, grow wiser by experience, and import less. If too many artificers in town, and farmers from the country, flattering themselves with the idea of leading easier lives, turn shopkeepers, the whole natural quantity of that business divided among them all may afford too small a share for each, and occasion complaints that trade is dead; they may also suppose that it is owing to scarcity of money, while in fact it is not so much from the fewness of buyers, as from the excessive number of sellers, that the mischief arises."

Here again is an estimate, this time of retail trade conditions, which might be printed word-for-word in any year-end estimate of present business conditions, simply by substituting the word "buy" for the word "import".

Today, as two hundred years ago, there is too

much to sell. The American characteristic which impels men of moderate mind and too moderate means to enter upon a business wherein he thinks he "will be his own boss" has vastly over-supplied this nation with retail outlets. Being thus over-supplied it is only natural that men of better means and vastly improved minds should establish "chain" stores and, in a measure, absorb the weaker shop-keepers and reduce the total number of outlets—to the tune, of course, of a hugh outcry from the large number of "independents" being pushed to higher levels.

And today, as never before, there is too much to sell from the industrial fabricating end. Industrial over-production is one of the serious problems of today, and incidently a problem which, although old, has sufficiently strange angles to make many people believe it altogether new. The shoe industry is able to produce three times as many shoes as can be worn by Americans; the cement industry, half again as much cement as we need; the woolen industry, three times as much woolen fabric as is necessary for the nation; the railroads are able to carry twice as many passengers as are willing to buy tickets; the paper industry, 100 per cent more paper than present markets will consume; with similar conditions prevailing in many other lines.

But although we have these major problems to solve, we find the entire nation thinking in terms of 1830, and, as Macaulay put it: while "everybody knows that up to his own time progressive improvement has been taking place, nobody seems to reckon on any improvement during the next generation," and again: "On what principle is it that when we can see nothing but improvement behind us, we can expect nothing but deterioration before us."

We Must Prepare for Progress

Our own industry has great need to give serious consideration to the astonishing number of far-reaching improvements which press upon us from every side. Mention of just one or two will be made.

Perhaps no single thing epitomizes modern progress than the perfected utilization of Silica Gel. Here is a remarkable substance; a hard, glassy material not unlike clear quartz sand which becomes a mechanism, when in a manufactured solid, absorbent form, that harnessed the force of capillary attraction —a latent force in nature which is more and more being put to such uses as refrigeration, air conditioning, catalytic action, refining light oils, etc.

Manufactured Silica Gel is a semi-solid substance which contains infinitesimal pores—one-billionth the size of the pores of an ordinary sponge; and it is these pores which under proper conditions can drink in or absorb vapors and gases and hold them as a sponge will hold water. Ten pounds of Silica Gel placed above a vessel of water will absorb four pounds of that water, yet give the surface appearance of being perfectly dry and of exactly the same volume. Should heat be then applied, the Silica Gel will release its water and be rendered capable of absorbing a like quantity again. This cycle may be repeated indefinitely, without injury to the absorbent material.

In refrigeration uses, Silica Gel last year transported approximately three million pounds of perishable food stuffs a total of 2,100 miles without the loss of either quantity or quality of material. In air-conditioning, Silica Gel has already performed major work in providing laboratories and processing plants with atmosphere of exact moisture content. In countless ways, the cost of manufacturing synthetic products will be reduced greatly by the application of Silica Gel.

Central heating systems, usually located outside the district of high rentals, have more than proved their efficiency during past years. In New York City alone for instance, more than 2,500 smoke stacks have been eliminated. And not only has this elimination clarified the atmosphere, cut laundry and cleaning bills and improved health, but it has relieved traffic congestion by nearly 1,000 motor trucks which otherwise would be engaged in hauling coal and ashes, or oil.

In the petroleum refining field we find hydrogenation a new process which gives full promise of revolutionizing the gasoline industry. Heretofore, the most efficient process was unable to obtain more than 42 per cent gasoline from a barrel of crude oil. This low percentage of efficiency resulted in a tremendous over-supply of heavy oils. Today, thanks to the hydrogenation process, refiners may now gain 100 gallons of gasoline from 100 gallons of crude oil. Furthermore, under this process, refiners will be able to turn out oils of better and more uniform quality than ever before.

These are just three of the minor, more practical developments which have been brought about within the past few years. Countless other equally practical and far-reaching improvements are daily being made in almost every industry, our own included. It remains for us to recognize that there is nothing permanent save change—and that the changes are always and forever for the better. A single breaker may recede but the tide still rolls in. Where there has been improvement in the past there will be improvement in the future. Where one industry loses its business to another there must invariably be a third industry created to care for the needs of the merger. Where one man is replaced by a machine, there must always be two men to build the machine. Where there is one year of hard times there must inevitably follow two years of good times to both take up the slack and give progress to the nation.

Harking back to Macaulay, let me conclude with another pertinent paragraph, which is quoted again because of its fitness to present day conditions:

"Our rulers will best promote the improvement of the nation by strictly confining themselves to their own legitimate duties—by leaving capital to find its most lucrative course, commodities their fair price, industry and intelligence their just reward, idleness and folly their natural punishment—by maintaining peace, by defending property, by diminishing the price of law, and by observing strict economy in every department of the state."

Rules for 1931 Safety Contest

Paper and Board Converters Now Eligible to Enter

RULE 1—This contest is open to all members of the Paper & Pulp Section, National Safety Council, employing 30 or more workers and coming within the scope of Rule 2.

RULE 2—This contest shall be divided in two divisions, namely:

Division I—Pulp and Paper Mills

Those mills having in operation fourdrinier; cylinder or pulp mill machinery and actually engaged in the manufacture of pulp, paper, container board, strawboard, plasterboard, roofing paper, insulating or wall board. **This is interpreted to mean that a paper or board re-manufacturing plant in connection with or in close proximity to a pulp mill, paper mill, etc., (as defined above) must be included and entered in the registration of the eligible mill.**

Division II—Paper and Board Re-Manufacturing Plants

Those plants having in operation equipment for the manufacture of set-up or solid boxes, corrugated and fiber boxes, folding boxes, coating of paper and board, tissue goods and specialties, paper bags, and other paper and pulp goods manufacturing. **This is interpreted to mean that plants solely engaged in printing paper or board are not eligible.**

RULE 3 (a)—Each division shall be divided in four (4) groups, namely:

A. Those mills or plants employing 751 or more workers
B. Those mills or plants employing 401 to 750 workers
C. Those mills or plants employing 101 to 400 workers
D. Those mills or plants employing 30 to 100 workers

(b)—A mill or plant to remain eligible must operate a minimum of 70 per cent of the calendar working days in the period of the contest.

(c)—The National Safety Council shall have the right to combine groups, in their respective divisions, when the registered number in any group is deemed insufficient to sustain a contest.

RULE 4—The Seventh Annual Contest shall start January 1, 1931 and end June 30, 1931. It is understood, however, that all registrations as of February 1, 1931 will automatically be entered in the Eighth Annual Contest (12 months duration) starting July 1, 1931 and ending June 30, 1932.

RULE 5—The winner of each group shall receive the National Safety Council Award and shall be the mill receiving the greatest total number of points credit (or the least total number of points charged in the event there are no mills with credits) during the period of the contest, based on percentage reductions of both frequency and severity, as compared with the contest frequency rate of 25.00 and the severity rate of .50.

(A) **Frequency**—8 points shall be credited for each 1 per cent reduction as compared with the frequency rate of 25.00. Likewise, 8 points shall be charged for each 1 per cent increase.

(B) **Severity**—2 points shall be credited for each 1 per cent reduction as compared with the severity rate of .50. Likewise, 2 points shall be charged for each 1 per cent increase.

(Example)—Mill employing 500 men during the contest works 625,000 hours and has 25 lost time injuries causing 150 days lost time, thereby producing Acc. Freq. rate of 40.00 and Acc. Sev. rate of .24. Freq. rate of 40.00=60.00% above average (25.00); therefore, at rate of 8 points for each 1%, the charge would be 480 points (8x60).

Sev. rate of .24=52% below average (.50); therefore, at rate of 2 points for each 1%, the credit would be 104 points (52x2). Total points charge=376 (480—104).

RULE 6 (a)—In the event that two or more mills in any group have perfect scores (no lost time injuries during the contest, which is equal to 1,000 points credit), the winner shall be the mill among those tied having maintained that continuous record for the greatest number of consecutive calendar days prior to the contest.

(Example)—Mills A and B complete contest with perfect records. Mill A's perfect record dates back to December 1, 1930 for a total of 30 calendar days more than the period of the contest. Mill B's perfect record dates back to December 11, 1930 for a total of 20 calendar days more than the period of the contest. Mill A is declared the winner.

(b)—In the event of a tie under the above conditions all such mills among those tied shall receive the N.S.C. Award.

RULE 7—A lost time injury shall be any injury, resulting in the loss of time, which comes within the scope of Item 40 on the reserve side of the attached report form. This is interpreted to mean that all time shall be counted as lost time until the injured employee returns to a regularly established job, which he can perform with normal efficiency.

RULE 8—All lost time shall be charged to the month in which the personal injury occurred. However, corrections may be made in previous reports, when the corrected report has been duly signed by the individual requesting such change and **countersigned** by an officer of the company.

RULE 9—All contestants shall make monthly reports to the Chicago office of the National Safety Council on forms furnished as per attached copy. These reports shall be in accordance with all rules listed and notes on reverse side of report.

RULE 10—Reports must be mailed so they will reach the headquarters office not later than the 15th day of the month following.

RULE 11—Any contestant 30 days or more in arrears with its monthly reports shall automatically be withdrawn from the contest.

RULE 12—Every mill entered in this contest will receive a key number known only to that mill and one member of the headquarters staff, National Safety Council. Monthly ranking of mills will be published on this basis. Final rank numbers will be published with company names at the next Annual Safety Congress.

RULE 13—When the winner of each group has been definitely decided, the judges will award by a majority vote to the one of these four in each division having in their opinion, established the best record based on frequency and severity, man-hours worked, physical conditions and any other contributing factor, the grand prizes donated by THE PAPER INDUSTRY of Chicago and the National Safety Council.

RULE 14—To all mills finishing in positions two and three, in each group, and to those finishing with a perfect record but not receiving the group award, the National Safety Council will present a Certificate of Merit.

RULE 15—Final award of all trophies and certificates will be made at the Annual Safety Congress of the National Safety Council.

RULE 16—The judges of this contest shall be:

E. W. Beck, Safety Director, United States Rubber Co., New York City.
E. F. Blank, Safety Director, Jones & Laughlin Steel Co., Pittsburgh, Pa.
W. H. Cameron, Managing Director, National Safety Council, Chicago.
Edward B. Fritz, Publisher, THE PAPER INDUSTRY of Chicago.
G. E. Sanford, General Electric Co., Schenectady, N. Y.

RULE 17—All entries in this contest must be made on the "Official Registration Form" and received on or before February 1, 1931.

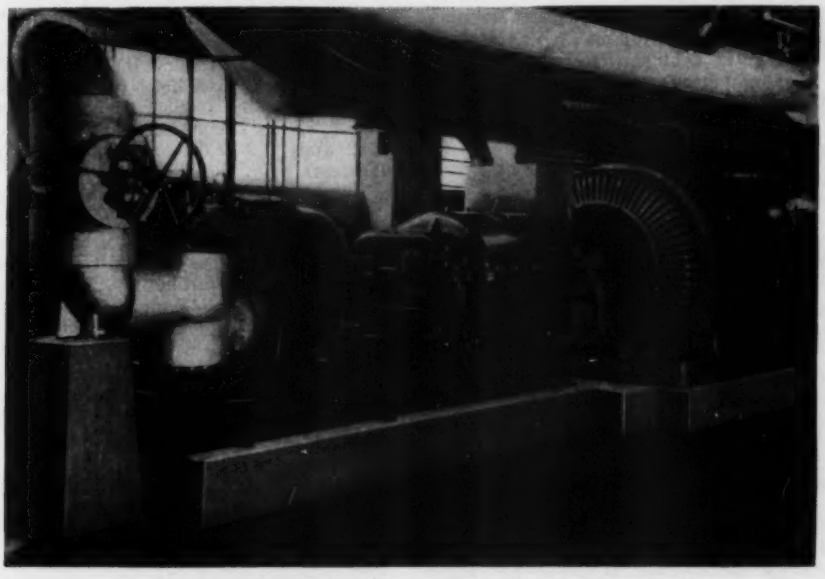


Fig. 1—General view of the turbine as installed

A Balanced Steam Turbine Installation

Method of Securing Maximum By-Product Power Returns Investment in One Year

By THOMAS PARKS
Engineer, Hawley Pulp & Paper Co., Oregon City, Ore.

UTILIZATION of the back pressure turbine in the modern newsprint paper mill offers attractive possibilities because of its ability to cope with the conditions ordinarily met with in that service. As an illustration of a specific case with facts that should prove interesting to the paper mill engineer, the following article is presented.

We will first of all direct our attention to the paper machine proper and without entering into the subject too deeply, deal with the steam and electric power requirements for this machine, which in this case is 234 in. wide, capable of producing 125 t. of newsprint per 24 hr. at a linear speed of 1,000 ft. per min. and a daily steam consumption of 1,000,000 lb. of low-pressure steam for drying the paper. This is equivalent to 4 lb. of steam per pound of paper or 42,000 lb. of steam per hour.

To obtain a comprehensive idea of the power requirements involved, the following data are given in a simple manner.

The high-speed newsprint machines of today are generally equipped with electric drive, meaning that each of the seven sections of the machine proper and the reel is each connected to its respective direct-current motors of various ratings as follows:

	Motor Size	Total Hp.
Couch	200 hp.	200
Three press sections	125 hp.	375
Two dryers	190 hp.	380
Calender	190 hp.	190
Reel	65 hp.	65
Total installed		1,210

Actual hp. loads at 1,000 ft. per min. paper speed:

Couch	120 hp.
Three press sections	210 hp.
Two dryers	120 hp.
Calender	120 hp.
Reel	30 hp.
Total	600 hp.

In passing, it may be noted that the motor ratings are approximately 50 per cent in excess of the actual power requirements for driving the different sections. Poor efficiency, one not familiar with this particular kind of work would say. It is, however, considered as being first-class engineering practice for reasons best known to the paper mill engineers.

Electric power necessary when the paper machine is driven by this type of drive can be readily calculated with reasonabe accuracy in the following manner: Hp.=0.25 per inch of width[1] per 100 ft. of paper speed per minute. For instance, assume the normal operating speed of a 234-in. machine equal to 1,000 ft. per min. Power required then would be equal to $0.25 \times 234 \times (1{,}000 \div 100) = 585$ hp. This checks closely with 600 hp. actually used.

In addition to the direct-current power requirements for the paper machine, closely related auxiliary equipment such as jordans, screens, vacuum pumps, fresh water pumps, white water pumps and stock pumps, require approximately 1,000 hp. for which alternating-current motors ranging from 5 to 200 hp. are invariably used.

The paper machine and its immediate auxiliaries are only one part of the whole mill. A fairly accurate figure for estimating the power for the whole mill per ton of finished newsprint per 24 hr. may be taken as 85 hp.; 60 hp. being allocated to the grinders or groundwood plant; 5 hp. for the sulphite plant; 15 hp. for maximum speed of machine and 5 for miscellaneous requirements.

This article is primarily concerned with the power requirements of the paper machine and its immediate auxilia-

[1]This value varies from about 0.23 to 0.35 depending upon the type of machine, kind of drive and composition and thickness of paper.

ries only. This power on the basis of a paper speed of 1,000 ft. per min. is 600 hp. for the paper machine plus 1,000 hp. for its immediate auxiliaries, making a total of 1,600 hp. or on the basis of 125 t. of paper a power requirement of approximately 13 hp. per t. of paper machine capacity per day. This checks fairly well with the usual

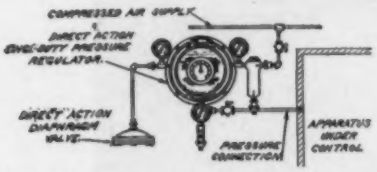


Fig. 2—Details of the auxiliary back pressure control

assumption of 15 hp. as stated in the paragraph above for maximum speed of machine. Power for the whole mill being about 85 hp. for 24 hr. or 2,040 hp.-hr. total per ton of paper, each pound of paper consumes about 1 hp.-hr.

When we consider that newsprint represents a large per cent of the total tonnage of paper products in United States and Canada, it is easy to see why the paper manufacturers are greatly concerned regarding the cost per ton in which steam and electric power play such an important part. Hydroelectric power carries most of the load in many paper mills, but as quantities of low-pressure steam are required for drying the paper, it has been found economical to use steam prime movers for driving the paper machines. This is advantageous also in producing continuous output of finished paper regardless of possible interruptions in the supply of hydroelectric power which is often brought from a considerable distance.

As a prime mover the steam turbine has, during recent years, largely superseded the reciprocating steam engine because it is particularly adapted for this kind of work which calls for higher back pressures and large quantities of low-pressure steam. The exhaust steam is also free from oil, an important factor in maintaining capacity.

Steam requirements are necessarily large and equivalent to approximately 42,000 lb. per hr. for a paper machine of the size mentioned above. Power obtainable, assuming that all this steam is passed through the turbine at a throttle pressure of 135 lb. per sq. in. ga. with 75 deg. F. superheat would represent approximately 1,375 hp. at a back pressure of 15 lb. ga. The direct-current power required to produce 600 hp. at the paper machine is about 508 kw. This uses 732 hp. of the turbine output. The balance, or 643 hp. is

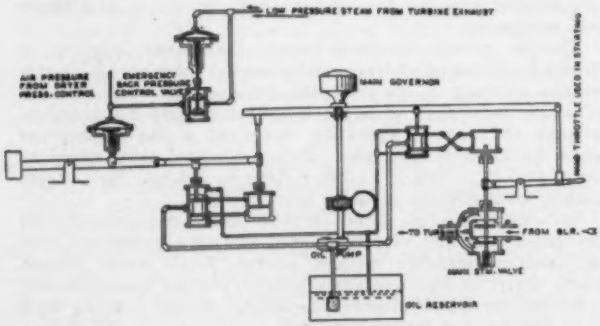


Fig. 3—Diagram of piping for regulator and turbine governor

available for producing alternating current from the alternator.

Selection of the most favorable method of absorbing this power has been a matter of increasing study on the part of paper mill engineers and at the present there is considerable difference in opinion regarding this question. The steam turbine has in many instances supplanted the synchronous motor to drive the direct-current generator.

Steam cost is of primary importance, so with this in view we might concern ourselves with the Hawley Pulp & Paper Co. Mill at Oregon City, Ore.

As we have seen, 42,000 lb. of low-pressure steam per hour is necessary to dry the paper. The only economical means formerly available for furnishing this steam was through a 600-hp. Corliss engine connected to a 500-kv. a. alternator, the steam consumption of the engine being approximately 17,000 lb. per hr. at 15 lb. back pressure. This represents only about 40.5 per cent of the aggregate, the remaining 25,000 lb. per hr. being made up by live steam.

One dependable and reasonably satisfactory scheme considered was to connect the turbine to the motor-generator set and to control the load on the turbine by hand or motor adjustment of the turbine synchronizer spring. That is, the synchronous motor is connected in tandem with the turbine and direct-current generator. The alternator is then tied in with the hydroelectric system or other power supply and the load can be readily adjusted to supply as turbine exhaust nearly all the steam necessary for drying the paper. The exhaust represents approximately 90 per cent of the total, the remaining being live steam makeup. Without

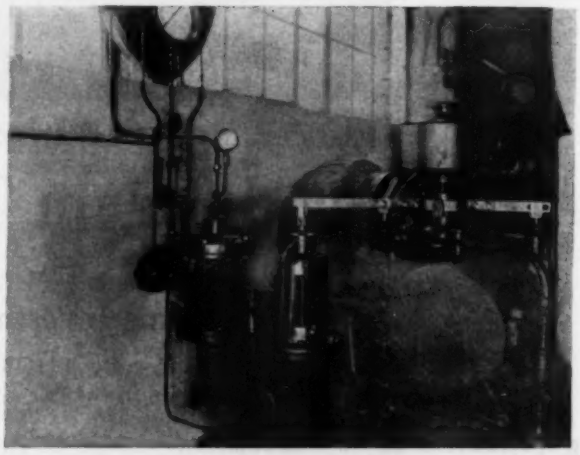


Fig. 4—Close-up of the pressure control showing construction details

automatic control, however, this scheme has its disadvantages, insofar as the economical use of the steam is concerned.

With the above arrangement, it is necessary to arrange some satisfactory means of taking care of the steam when the paper is off the machine due to breaks and interruptions which are at times absolutely unavoidable. For such a condition the steam ordinarily is released to atmosphere but this often proves disagreeable and annoying to the paper mill employees living near the mill. As an alternative a condenser would suffice to take care of this steam but as the initial cost and the maintenance is tremendously high, it could hardly be considered as being a profitable investment, particularly when compared with another scheme described later.

A 1,080-hp. synchronous motor driving a 750-kw. direct-current generator was already in use. It was decided to connect a steam turbine to this motor generator set through reduction gears and to use automatic back pressure control in connection with this turbine.

The new turbine was a 1,400-hp. Moore back pressure unit arranged in tandem with the alternating-current and the direct-current generators, the former being connected to the hydroelectric power company system. The turbine is automatically controlled in such a manner that when the paper machine is in operation and the paper is passing through to the reel, all the steam necessary for drying it passes through the turbine, no live steam being used. On the other hand, when some abnormal condition exists and the paper is not passing over the machine, little or no steam is necessary until the paper is again passing over the machine. During this off period, the alternating-current generator

is temporarily the prime mover. Steam that would otherwise pass to atmosphere is automatically cut off at the turbine throttle valve, just sufficient being allowed to pass to maintain a steady pressure on the dryers during the paper-off periods.

Energy extracted from the 25,000 lb. of steam per hour, which prior to the turbine installation passed through the pressure reducing valve represents a handsome profit insofar as the alternator is furnishing power at an average rate of 420 kw. equivalent to 10,080 kw.-hr. per day. This represents a net saving of $24,500 per year of 310 days. It may be said without fear of contradiction that the capital investment of $20,000 was fully warranted. The chart as shown will serve to indicate the actual performance of the Corliss engine compared with that of the steam turbine and the net savings in dollars and cents based on excess power rate of 8 mills ($0.008) as purchased.

The turbine is provided with a back pressure control which acts on the governor valve of the turbine and permits just enough steam to pass through the turbine to maintain the desired pressure in the exhaust line. Speed is maintained

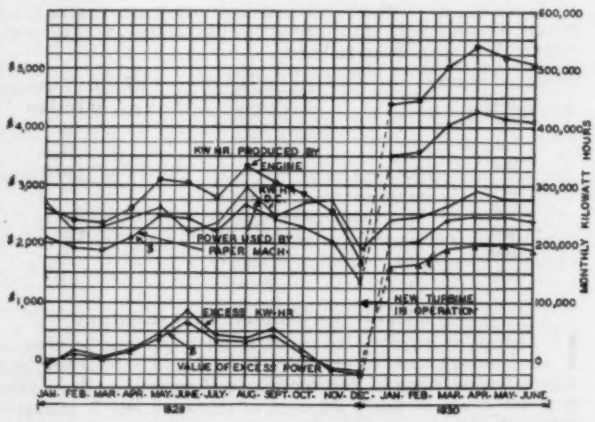


Fig. 5—Graphic comparison of the performance of the turbine and engine

constant by the alternator being operated in parallel with a hydroelectric system. The speed governor of the turbine is so arranged that it will immediately take control in case speed rises above normal.

Engineers of the Hawley Pulp & Paper Co. have adapted this control to make it responsive to exhaust steam pressure at the paper machine instead of directly at the turbine exhaust opening. To accomplish this purpose, a Tycos "Singl Duty" pressure regulator has been used as a relay between the paper machine steam header and the Moore back pressure control mechanism. Compressed air is used as an operating medium and slight changes in exhaust steam pressure at the paper machine header cause proportional but greater changes in the air pressure imposed on the diaphragm of the turbine control. To provide against possible failure of the compressed air supply, arrangement has been made to apply exhaust steam directly to the diaphragm of the turbine control in the event of excessive back pressure.

This system of back pressure control has been found absolutely dependable, simple and as the setting of the back pressure is similar to turning the hands of an everyday clock, it is handled entirely by the papermakers.

Savings realized by the use of the new turbine compared with the 500-kw. engine together with other data of interest are shown by the curves and also by the tabulation. With the control used, the turbine will always produce the maximum power from the steam passing to the paper machine and never waste exhaust steam to the atmosphere.

TABULATION SHOWING THE AMOUNT AND VALUE OF POWER PRODUCED

Year and Month	Kw-hr. d. c. used by No. 4 paper machine	Kw-hr. produced	Value at $.008 per Kw-hr.	Kw-hr. prod. in excess of paper mach. d. c. requir.	Value of excess power at $.008 per Kw-hr.
1929		By Engine			
Jan.	270,000	258,000	$2063.00	—12,000	—$ 96.00
Feb.	225,000	240,000	1920.00	15,000	120.00
Mar.	230,000	235,000	1880.00	5,000	40.00
Apr.	245,000	260,000	2080.00	15,000	120.00
May	265,000	310,000	2480.00	45,000	360.00
June	220,000	305,000	2440.00	85,000	680.00
July	235,000	280,000	2240.00	45,000	360.00
Aug.	296,000	334,000	2672.00	38,000	304.00
Sept.	247,000	303,000	2425.00	38,000	448.00
Oct.	269,000	285,000	2280.00	16,000	128.00
Nov.	274,000	255,000	2040.00	—19,000	— 152.00
Dec.	190,000	163,000	1304.00	—27,000	— 216.00
1930		By Turbine			
Jan.	240,000	438,000	$3504.00	198,000	$1584.00
Feb.	244,000	445,000	3560.00	201,000	1608.00
Mar.	265,000	503,000	4024.00	238,000	1904.00
Apr.	290,000	534,000	4272.00	244,000	1952.00

A New Automatic Core Cutter

Continuing its program of development and refinement in equipment designed for paper converters, the Hudson-Sharp Machine Company of Green Bay, Wisconsin, has just developed a new automatic core cutter which will materially increase production and lower costs where paper cores are required for roll toilet paper or similar products.

While common practice has required that the cores be wound on one machine and then cut to desired sizes on a second, the new equipment produces cores of any desired size by a continuous and automatic process.

The automatic core cutter is attached to the Standard spiral core machine placed before converters by the Hudson-Sharp Company sometime ago. It takes the continuous core previously wound over a mandril of an accepted diameter and cuts it into desired lengths in multiples of five.

An adjustable drive between the cutter and spiral tube winder provides means so that the outer core end has a trim adjusted as low as ⅛ of an inch. This means that waste is cut to a minimum, almost negligible when compared to that involved in old methods of core cutting.

The machine is adjustable so that it synchronizes perfectly with any change made in production on the core winder and may be changed to care for cores of different lengths.

54th Annual Paper Assembly

Paper Week will open on Monday, February 16, 1931, at the Hotel Pennsylvania, New York, at which time the American Paper and Pulp Association, the National Paper Trade Association, and affiliated associations and sections, will convene to discuss their common problems.

The program will be constructed with especial reference to the present situation, and ample time will be allowed for general discussion. This pooling of experience and opinion should uncover the causes of many difficulties and point the way to effective co-operative action. Perhaps this will be the opportune time to demonstrate by the size of the attendance, the enthusiasm and the character of the meetings, that the paper industry is on a sound foundation and faces the year with unshaken confidence.

Reduced railroad fares will be available to the members of all participating organizations on the "identification certificate" plan which was used last year. Round trip tickets to New York under this plan can be purchased for the price of a fare and a half. As usual, members will arrange for their own hotel reservations.

Details as to the convention and annual banquet will be published later.

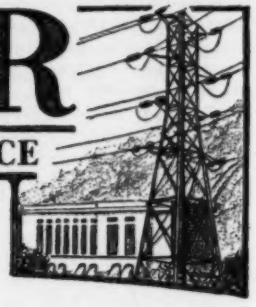
Nash Appoints Mid-Western Representative

Announcement is made by the Nash Engineering Company, South Norwalk, Conn., that Edward Mead, who has been the company's assistant sales manager has been appointed its representative in the mid-west.

Mr. Mead will succeed the late Thomas H. Savery, Jr., and will be located in the Board of Trade Building, Chicago.

POWER

GENERATION - UTILIZATION - MAINTENANCE



By W. S. JOULE

This section turns the searchlight upon power and its allied problems. It shows up big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

When a Shut-Down Comes—Are You Insured?

ACCIDENTS, minor or tragic, are occurring to "the other fellow" all the time. We hear of them, we see them. But do we heed them and prepare more wisely and deliberately to protect ourselves against similar occurrences and losses? Individuals as well as organizations seem to be extraordinarily hesitant to ask themselves after some accident, "Could the same thing happen to me or to our company?"

A costly toll of property and life is being taken every year in the power plants of the country. The majority of these accidents are not broadcast and most of them pass unnoticed except for local publicity. Consequently their moral is not understood as it otherwise might be and similar accidents occur elsewhere, that might have been prevented had wider publicity been given to former occurrences of the same sort.

Recently the longitudinal seam of a digester at a sulphite mill in New Hampshire failed, causing the death of three men and the serious injury of nine others. The total property damage was in the neighborhood of $200,000 and the use and occupancy loss was between $90,000 and $100,000. The explosion tore out the side of the building and damaged the acid reclamation equipment so extensively that a complete and long shut-down of the entire plant was necessary.

We know no details of the accident other than the digester was 18 feet in diameter and 47 feet high, the longitudinal joints being of the butt and single strap design. We do know, however, that the death of three men, the serious injury of nine others, a property damage of $200,000 and a loss of between $90,000 and $100,000 due to use and occupancy represents a tragedy and a loss that should be avoided at all costs. It is a loss that in many instances would put an organization out of business. Care, knowledge and eternal watchfulness and efficient management and these, alone, will prevent accidents. And the only way to lessen the loss when it occurs is to carry insurance that covers not only the loss of property but also the loss incurred due to loss of use and occupancy. Full protection is obtained only when both these forms of insurance are carried. The greater the investment in power equipment, the more important it is to insure it against loss and destruction. The greater the dependence placed upon the source of power, the greater the inducement to carry loss of use and occupancy insurance. All in all, it is more than probable that this second source of loss will average higher than that due to the actual damage or injury to the equipment. The answer, then, is to carry adequate insurance and to obtain the minimum rate by maintaining everything in first-class condition, with an organization that is everlastingly "on its toes."

Estimating Range of Draft

WHEN it is planned to install draft gauges in a boiler room, the man who must decide sometimes wonders how he can determine the maximum range for the draft gauges to be used.

A rough but very close rule in calculating stack capacities or range of draft gauge required is to allow 0.5 inch of actual draft for every 100 feet of chimney height. The stack height is measured from just above the smoke flue inlet. This rule is based upon a tight stack, a thick concrete stack, a well laid brick stack or a steel stack, and for average stack temperatures at the base, namely 450 to 600 deg. Fahr.

According to Lewis M. Ellison, the well-known designer of draft gauges, the chimney height, for natural draft, that a draft gauge without seal will serve on the boiler or flue with damper full open is as follows:

Height of Stack, in Feet	Range of Gauge, in Inches
100	½
150	¾
180	.90
200	1
280	1.4
300	1½
400	2
600	3

A Short-Cut to Smoke Investigation

IN the cities, smoke abatement is all important because of the damage done to property, human and animal life, and vegetation by smoke. Farther removed from the city, smoke may not cause so much damage to property but it indicates waste of fuel.

Consequently, wherever fuel is burned, effort is made to prevent smoke.

The accompanying table gives seven distinct conditions due to which smoke may occur. These in turn are "broken down" into 33 possible remedies or means of prevention, each remedy being listed according to the fundamental cause of the smoke. This table is, therefore, extremely valuable when investigating different causes of smoke—in fact, wherever checking up the operation of a furnace or boiler. This chart, together with a set of four Ringlemann charts and smoke prevention data have been issued by the Plibrico Jointless Firebrick Company, Chicago, to encourage smoke abatement. It is to this well-known manufacturer of plastic furnace linings that we are indebted to the following table. A copy of this may be obtained from them upon request.

Smoke Prevention Table

Cause of Smoke	Indicated Remedy
Lack of draft.	Increase height of stack. Increase capacity of blower. Operate dampers properly. Increase area of breeching. Decrease infiltration of air. Clean gas passages in boiler. Clean clogged ash pit. Decrease length of breeching. Eliminate bends in breeching. Decrease excess air entering around furnace or through fuel bed.
Improper furnace design.	Increase furnace volume. Increase furnace height. Correct distribution and mixing of air with volatile. Change of fuel. Additional air for complete combustion.

Improper air distribution at fuel bed.	Level and clean fires eliminating holes and lumps and to obtain free airflow through fuel bed and more uniform distribution. Introduce air over the fire at the firing doors or at side, to bring about adequate mixing of combustible with oxygen. Accelerate mixing of oxygen and volatile. Eliminate air leakage at rear between fuel bed and dump plate, etc.
When cleaning fires.	More careful use of slice bar and operation of dump plate. Minimize mixing of incandescent fuel with green coal. Keep fuel bed more uniform; do not allow clinker masses to form. Regulate firing. Clean more carefully in the case of hand-fired furnaces. Regulate stoker feed for better coal distribution.
When starting up.	Feed green coal more slowly until furnace arch and walls have sufficient heat to accelerate ignition and combustion.
Incorrect coal.	Use coal with less volatile or slower-burning characteristics. Use smaller sizes. Fire "light and often" by the "spread and alternate" method where hand-fired. Wet coal before using to create a more porous and homogeneous fuel bed and to lessen avalanching.

An Analysis of Flywheel Explosions

A CLOSE relationship exists between the lumber industry and the paper industry on account of the large amount of wood used in the making of paper. In the study of flywheel explosions it has been found that the largest number occurred in the woodworking industry, namely where saw rigs and portable saw mills were used; and among shingle manufacturers. The next largest number of accidents occurred among the public utility electric light and power plants, and the third largest number occurred among paper mills. An analysis of flywheel accidents therefore is largely an analysis of accidents in paper and pulp mills, logging plants and saw mills. As steam turbines are used to such a great extent in the paper industry, a breakdown of turbine explosions which comes under the heading of flywheel explosions, would be of interest.

According to the Hartford Steam Boiler Inspection and Insurance Company, twenty-nine flywheel explosions occurred during 1929 in this country. Of these twenty-nine, one was due to an emery wheel bursting in a factory. One flywheel explosion occurred in a residence. The remaining twenty-seven all took place, strictly, in power plants. Omitting the shattering of an emery wheel, the flywheel explosions occurring according to the industries or type of plants in which they occurred are shown in the accompanying table.

Where Flywheel Accidents Occurred, 1930

Type of Plant	Total Number of Accidents
Shingle Manufacturers, Saw Rigs, Portable Saw Mills	6
Public Utility Electric Light & Power Plants	5
Paper Mills	4
Municipal Power Plants	2
Manufacturing Plants	7
Laundry	1
Pumping Station	1
Farms	1
Residences	1

Breaking down still further, the different classes of flywheel accidents as shown in the following table, is of interest.

Classification of Flywheel Accidents	Number of Accidents
Flywheel exploded	11
Engine flywheel exploded	3
Belt wheel exploded	3
Flywheel burst	1
Engine ran away, governor failure	1
Belt wheel broke	1
Gas engine flywheel exploded	1
Pulley burst	1
Emery wheel burst	1
Total	23

The following table shows the various accidents to steam turbines and the cause of each. This is of particular interest to engineers in paper and pulp plants because of the wide usage of steam turbines.

Explosion of Steam Turbines

Class of Turbine Accidents	Number of Accidents
Fan on turbine exploded	1
Oil pump, turbine disc, explosion	1
Turbine rotor exploded	1
Turbine disc exploded	1
Turbine exploded	1
Total	5

In connection with steam turbine failures, it is interesting to note that of the five accidents, four occurred in central station plants and one in the plant of a cereal manufacturer. Two of the accidents occurred in two different plants of one central station company. None of them occurred in paper and pulp plants, however.

A total of twelve lives were lost and ten people were injured in the twenty-nine flywheel accidents which took place during 1929, according to the Hartford Steam Boiler Inspection and Insurance Company. According to the fatalities, flywheel explosions proved more costly of life and limb than boiler explosions during this year, relatively. For example, for every individual killed by boiler explosion during 1929, 2.74 persons were injured. That is to say, one person was killed or injured for every 3.75 boiler accidents. On the other hand, the twenty-nine flywheel accidents took a toll of twelve lives and ten injured people, the ratio being 1.2 fatalities, to one injury. This means that for every individual injured, 1.2 persons were killed and that 1.32 persons were killed or injured for every flywheel accident compared with one person killed or injured for every 3.75 boiler accidents. Expressed differently, the loss or injury to human being was considerably greater in the case of flywheel explosions than in the case of boiler explosions.

To make a true comparison between the various industries, or between the relative hazards of pressure boilers and flywheels it will be necessary, of course, to know the horsepower of each industry, the total horsepower hours operated during the year of 1929. The above figures serve, however, to draw attention to the fact that flywheel explosions do more damage than boiler explosions. These statistics serve also to stress the fact that flywheels and rotating machinery is a hazard, a fact which is overlooked in many instances because "familiarity breeds contempt." Without belittling the danger of the steam turbine with its enormous concentrated energy and terrific peripheral speed and centrifugal force, therefore, the slow speed flywheel was evidently more deadly during 1929. In fact, no loss of life resulted from steam turbine accidents. While this may be due to the construction of the case and the increasing use of steel for the case instead of cast iron, it is more than probable that the high-grade of supervision, a greater care for maintenance and stricter regulations existing in the well-managed plants employing steam turbines have served to prevent more accidents and fewer injuries, whereas the logging camp and other out-of-the-way places where labor conditions are difficult, and supervision and carefulness are largely lacking, have the high accident rate and failure of flywheels.

The Month at Washington

THE Bureau of Customs had under consideration early this month an important question as to whether the consular invoice, of $2.50, should be placed back on all shipments of duty free and specific duty merchandise entering the United States. This charge formerly placed on many articles including paper from Canada, was lifted last August, by an order of the Bureau of Customs. Now there is a move to place back this invoice on all such duty-free and specific duty merchandise.

On protests from several government departments, which claimed they needed the consular invoice the commissioner of customs, Capt. F. X. A. Eble, called a hearing at the Bureau of Customs here. At this hearing strong opposition came from lumber, pulp newsprint and newspaper interests and several members of Congress to the reimposition of the consular invoice.

The U. S. Government representatives who advocated the resumption of the consular invoice came from the Department of Agriculture, Food and Drug Administration, the Tariff Commission and the Treasury Department. The Bureau of Customs had under consideration at the opening of the new year the questions of whether to put this invoice back as a whole, to leave it off as a whole or to strike some middle ground. There were indications that the government officials felt very kindly disposed toward Canada and Canadian business and that if possible Canadian shipments of duty-free and specific duty merchandise from that country would be exempted from the $2.50 consular invoice. It was thought likely also that products from Mexico might be exempted. If it is found necessary on account of international law or equity to re-establish the consular invoice it was thought that a nominal fee of 25 cents instead of $2.50 might be imposed.

It is expected a decision will be reached in this case during the month of January.

Government Paper Mill Proposed—Rep. Will R. Wood, chairman of the House committee on appropriations again has requested a hearing on the bill he introduced last Spring to provide for construction by the Government of a mill to manufacture distinctive paper for United States securities and paper money to be located in the District of Columbia.

Rep. Williamson, chairman of the House committee on expenditures in the executive departments, has informed Mr. Wood that a hearing will be held on his bill after the Holiday recess, probably during the month of January. Rep. Treadway of Massachusetts, who comes from a section which produces some of the best high-grade stationery and also the Government's complete supply of distinctive paper for money, will fight the bill. He had given notice that he will appear at the hearing in opposition to this measure.

Employment and Pay-rolls—The Bureau of Labor statistics of the U. S. Department of Labor reports changes in employment and pay-roll totals in November showing a decrease of 2.5 per cent in employment and a decrease of 5.1 per cent in pay-roll totals as compared with October, based on returns from 15 major industrial groups.

Employment in manufacturing industries in November decreased 2.7 per cent as compared with October and pay-roll totals decreased 6.1 per cent. Per capita earnings from manufacturing industries in November were 3.5 per cent lower than in October.

The paper and printing industry showed a slight recession in employment and pay-roll totals which, however, is less than that for the country as a whole. Taking the index number of 100 for the monthly average of 1926 the index for the paper and printing industry shows variations as follows:

MANUFACTURING INDUSTRIES	Employment			Pay-Roll Totals		
	1929	1930		1929	1930	
	November	October	November	November	October	November
Paper and printing	103.7	96.0	95.7	108.5	97.7	97.3
Paper and pulp	96.0	87.0	84.9	98.8	82.9	80.0
Paper boxes	104.1	91.5	90.9	112.2	95.2	92.9
Printing, book and job	104.0	95.6	95.9	106.8	96.3	97.0
Printing, newspapers	111.2	108.2	109.2	116.4	110.5	111.6

To Test Treasury Rulings—The Hudson Trading Co., New York, recently received a shipment of newsprint which contained approximately 5 per cent ash, and on which the New York customs officials assessed $3,000 duty. The company has protested and filed claim in the United States Customs court in New York for refund. The trial will be held this month. This case, involving the ash content of nondutiable paper comes under Treasury decision 40966 of June 29, 1925, which limits the ash contents of standard newsprint to two per cent.

A new ruling on which an issue is impending is that contained in treasury decision 44317, Oct. 21, 1931, which provides that standard newsprint shall not exceed .004 of an inch in thickness. This new decision will have a bearing on paper termed "novel News," which is similar to that used in Sunday supplements and some special departments. This ruling does not go into effect until November 20, and it is not yet known to have been applied to any specific shipment, but it is known that some shipments of "novel news" are due in New York soon, and it is likely this arrival will bring up a test of the recent ruling. The American Newspaper Publishers' Ass'n is interested in the outcome of both of these cases.

Tariff Hearings—The Tariff Commission dismissed without prejudice its investigation on cigarette papers which was to have started with a hearing on December 11. This investigation was understood to have been dismissed because the interests which requested it appeared at the opening of the hearing and withdrew their request.

An investigation is under way by the Tariff Commission into the cost of production of fourdrinier wires, woven wire cloth and cylinder wires which are used in papermaking machines. A hearing was held at the office of the commission on Dec. 9 and an exhaustive investigation has been conducted in the field in this country. The industry is located principally in New England, New York and Wisconsin. Another phase of the investigation looking towards determination of the cost of manufacture abroad is under way. When the commission has completed its report, expected within the next few months, it will submit a recommendation to the President under the provision of the new tariff act, known as the flexible provision. This new flexible provision of the tariff act authorizes the President to move tariff rates up or down by 50 per cent of the rate. The present rate on fourdrinier wire, the principal subject of investigation is 50 per cent advalorem as compared with 30 per cent in the old 1922 tariff act. Investigation is being made pursuant to a resolution of the Senate.

The American manufacturers of these articles felt there should be an increase in the present rate while representatives of importers opposed such an increase. Among the witnesses at the hearing were A. M. Ferry of Washington, D. C., secretary of the wire cloth manufacturer's association; Carl E. Whitney of Wise, Whitney & Parker, New York City, who appeared for Domestic Manufacturers; John F. Curley of Holyoke, Mass., representing the American Wire Weavers

Protective Association, who said employment in this industry was low; Hamilton Lindsay, president and manager of the Lindsay Wire Weaving Company of Cleveland, Ohio and Ralph B. Fleharty of Washington, D. C., who represented Neumeyer and Dimond, said to be the largest importers of these products.

Postmaster General Brown Asks Higher Parcel Post Rates —The Interstate Commerce Commission has been asked by Postmaster General Brown to readjust parcel post rates as a whole by fixing the rates on a more equitable basis and in order to secure additional volume of business in the more distant zones by increasing the weight-limit of parcel. This move was made in order to eliminate or reduce the deficit resulting from the operation of the parcel post. The plan would recommend an increase in most instances but said that it might be advisable "to reduce somewhat the rates to those zones where the revenues are computed to be far in excess of the expenditures and particularly where the parcel post rates are so much higher than express rates that they cannot be considered competitive."

New Zealand Flax as Papermaking Material

An investigation to determine the papermaking value of New Zealand flax (**Phormium tenax**) has been in progress in the Paper Section of the Bureau of Standards, Washington, D. C. Samples of the flax unscutched, scutched, and tow —which at present is used commercially only for cordage, were submitted to the bureau with the request for information relative to the suitability of the material for the production of paper.

Papermaking tests have been made on both laboratory and semicommercial scale. The test procedure followed was essentially the same as that generally observed in the production of paper.

Cooks were made using caustic soda, caustic soda and sodium sulphide combined, and sodium sulphite and caustic soda separately, as the reducing agents.

When the flax was cooked by the caustic soda process with comparatively small amounts of caustic (10 per cent) the pulp was suitable for good bag or wrapping paper; with larger amounts of caustic (25 per cent) it could be bleached with about 14 to 16 per cent of bleach and was then satisfactory to use in admixture with other pulps in making fine papers.

The yield of air-dried unbleached pulp from the 25 per cent caustic cook of unscutched New Zealand flax was 57.2 per cent, based on the bone-dry weight of the flax, in the semicommercial tests, and 57.7 per cent, in the laboratory test. The results of the laboratory and semicommercial tests therefore checked very closely as to yield when similar cooking conditions and amounts of chemical were employed. When 10 per cent of caustic soda was used, the yield of unbleached pulp was 77.4 per cent. This pulp was suited only for wrapping paper, however, whereas that from the 25 per cent caustic soda cook could be bleached and the resultant pulp was satisfactory for use in fine paper.

Unscutched flax cooked with 15 per cent of caustic soda and 10 per cent of sodium sulphide combined gave a yield of 62.2 per cent. The pulp obtained was satisfactory for use only in wrapping paper.

The pulp from the two-stage cooks—the first with 25 per cent of sodium sulphite, the second with 10 per cent of caustic soda—seemed to give the most satisfactory results. The yields of unbleached pulp were: 37.2 per cent for unscutched flax; 48.5 per cent for the scutched flax when not dusted; 60-65 per cent for the dusted scutched flax and 56.9 per cent for the dusted tow.

Some of the test results on the machine-made papers are given in the accompanying table.

The results of the tests thus far seem to indicate that if the flax can be properly cleaned, freed from dead fibrous materials, and the woody sections eliminated from the scutched material, a fair grade of pulp suitable for use with other pulps in making a fine paper can be obtained.

As soon as the investigation is completed a report of the work will be prepared for publication.

(Attention may appropriately be called to an article on "Phormium Fiber as Paper Material," by Gustaf Fornstedt, a practical papermaker, which was published in Paper for December 6, 1911.—Ed.)

	Weight 25 x 40, 500 sheets	Bursting strength	Folding endurance		Tensile strength		Tear strength	
			Mach. Dir.	Cross Dir.	Mach. Dir.	Cross Dir.	Mach. Dir.	Cross Dir.
	pounds	points	double folds		kilograms		grams	
Flax—unscutched, bleached 25 per cent caustic soda cook	56.8	37.7	341	487	9.1	6.2	64.4	63.4
Flax—unscutched, unbleached; 25 per cent caustic soda cook	58.9	61.6	4060	2824	11.9	7.9	106.6	98.4
Flax—unscutched, unbleached; 10 per cent caustic soda cook	57.5	52.5	1510	2250	10.8	6.5	114.0	95.2
Flax—scutched, bleached 2-stage cook, 25 per cent Na_2SO_3 and 10 per cent NaOH	56.1	40.1	670	1305	9.2	6.0	63.8	67.6
Flax—tow, bleached; 25 per cent caustic soda cook	55.1	42.6	700	735	9.3	5.8	71.2	78.0

Conditions in the Boxboard Industry

By E. VICTOR DONALDSON
Vice-President and General Manager, Robert Gair Company

WITHIN the past few weeks, the Robert Gair Company has established and published a new price list for the principal grades of boxboard. In taking this step the company had two objectives: first and foremost was a desire to re-establish some sort of correlation between price and cost of production; second and almost equally important, to bring the whole question of boxboard price out of the industrial underworld and into the open of sound economics and good business practice. In other words, we think the time has come to speak frankly.

Many months before the Wall Street collapse of October and November 1929 dropped the business of the country to its present level, the boxboard industry had begun to sicken. The circumstances which brought the illness about are neither rare nor peculiar. For some years there has been a surplus production capacity of between 20 and 25 per cent in the industry and the competition of manufacturers to unload this surplus on a satiated market accomplished exactly the same result that it has in other industries, namely a relentless hunt for orders for their own sake, at virtually any price, merely to keep plants operating at something like a full schedule.

Up to a certain point, competition is decidedly a benefit to the industry, to the manufacturer and to the buyer or consumer. It has proved a benefit to the boxboard manufacturer and to the industry by forcing a closer application to the problems of efficient, low-cost production and improvement of method and practice. I think it can be said for the larger units in the industry and for the industry as a whole that there has been an increase of at least 20 per cent in operating efficiency during the last three or four years and a resulting reduction in operating costs. Had it stopped at this point, had competition been confined to a cost-price basis, there would have been little complaint from manufacturer or buyer. The more efficient producer would have made a fair profit and the less efficient would have had to improve his practice or eventually leave the field.

The last year or more tells a rather different story. Production costs have played only a minor part in determining the price at which boxboard has been sold. The prevailing price basis has been "so-and-so much less than A's, B's, C's or somebody else's price" which in turn was figured in very much the same way. Price lists were not announced and the entire selling side of the business has been conducted pretty much along "whispering campaign" lines. The sales made at figures below actual production costs can be estimated conservatively at thousands of tons.

This sniping at prices also has served to halt the movement for better standards, simplification of grades, and improved quality which had been making considerable progress. Under the pressure of an extremely competitive market a premium has been put on cutting corners in meeting specifications.

Adding to the disorganization of the industry, the

market for raw materials out of which boxboard is made such as Swedish Kraft pulp and waste paper has been falling into the selfsame situation. Early in December I was informed on the most reliable authority that Swedish Kraft, then selling for around $30 a ton on this side, was costing the lowest-cost Swedish producers around $35 a ton and that for the high-cost mills, more than $40 a ton, delivered on this side.

It is obvious that no industry can long survive with its foundations resting on such quicksands. The condition is not a healthy one for the manufacturer of boxboard or for the package manufacturer or consumer. Consider what the present price of boxboard is based on.

First we take raw materials at about 15 per cent below their cost of production, put them through a complicated manufacturing process and then sell them at a figure which again shows a loss to the producer. The consumer may profit temporarily but in the long run he will have to pay for his short holiday. There is only one sound basis for the boxboard industry or any other industry to do business on, a basis on which price is built in its proper relation to low-cost, efficient manufacturing and selling. Only then can the industry pay an adequate wage to the workers it employs, keep its plants modernized and efficient, and attract the capital and operating skill necessary for its continued growth. Only then will the consumer be assured of a continual supply of reasonably stable prices and quality of the standard which they have a right to demand.

A Business Perspective

By SIDNEY L. WILLSON
President, American Writing Paper Co., Holyoke, Mass.

THE optimistic views expressed by me during the past year, have not in all cases materialized, but the courage back of that optimism has been helpful as it has enabled me to meet the ever changing conditions with a still more hopeful view of the future.

Reviewing the past year, so far as the paper industry is concerned, we find that during the first six months business was fairly good—with many companies' sales and net profits even exceeding those of the unusually good first six months of 1929. During the following six months an unprecedented slump in business was experienced, which absorbed most of the profits earned during the preceding period.

This condition has been the subject of much discussion, and I have been asked to analyze it and to express an opinion regarding it. I hesitate to do this, as opinions are to-day largely guesses; one may be a good one, another a bad one.

First, as a matter of historical record, we find our industry the last to be affected by depression and the last to revive from one. In October, 1929 general business fell over a precipice. It took a lot of paper to tell of the catastrophe, and being a catastrophe it took more than it would have taken to tell of good business news of which at that time there was a conspicuous absence. Newsprint contracts, advertising contracts and other forms of contractual business requiring the continuous use of paper, kept the paper industry on its feet long after many other industries had toppled over, and in that way the paper business continued to thrive and remain fairly stable until the middle of the year. This record was simply "history repeating itself." Then contraction in the use of paper began, and during the past six months it has been a gradual decline in orders, production, inventories and prices.

There have been mills which have produced beyond the capacity of their regular customers to consume. In these cases, either inventories have been increased or new customers have been sought and secured through cut prices, of course, to the injury of some other manufacturer or the industry as a whole. Other mills have kept uniform inventories which means production has been kept in harmony with orders and consumption—a very sane and practical policy to pursue—as it stabilizes conditions for the industry.

So far as merchants are concerned, great conservatism has been shown. Statistics indicate December 31st inventories lower by 15 per cent than those on January 1, 1930, which were then in process of liquidation because of the uncertainty of the future at that time. It is fair to assume, therefore, that merchant inventories are at the lowest point possible to render good service to the trade, and the necessity for them to come into the market for replacements is quite apparent.

We have reason to expect immediate improvement over the past two months, but we have no reason to expect a revival that will equal sales of the first three months of 1929. If we reach within 10 per cent of that figure I shall feel that a material improvement shall have taken place. For the following three months and, in fact, during the balance of 1931, I look for business to be on a more even keel, with perhaps a slight improvement after the middle of the year.

Wave of Pessimism Has Receded

We always have in business a certain number of pessimists willing to supply the "fear" in fearful. During the past year that number has been largely increased, but I believe the disease has run its course, and many of the victims of that disease are now convalescing and will soon be able to return to their business activities. I believe that over 75 per cent of business executives are fully recovered, waiting and prepared for the law of supply and demand to steam up, with "demand" out in the lead.

I have a little book entitled "Friendly Fellows" in which the following poem is printed, and its philosophy is well worth absorbing:

You can't turn Optimism
Into failure if you try,
Nor Pessimism to Success—
And here's the reason why!

The Optimist just keeps his head
When things are going wrong,
He sees the good in everything
And helps it right along.

The Optimist is hopeful
In thought and in his speech,
And helps to give new courage
To all within his reach.

The Optimist is handing out
So much of Faith and Cheer,
He's bound to be successful—
Because he knows no fear.

But what about the Pessimist
Who's full of hard-luck-tales?
He's always looking for the worst—
And that is why he fails.

Because in this old world of ours
It's well to keep in mind—
That what we look for and expect
Is what we're sure to find.

So Pessimism never reads
Success for you or me;
And Optimism never leads
To failure—no siree!

General commodity prices have deterred many from buying. It seems to me a careful study of present wholesale prices, compared with prewar prices and current costs, would be most convincing of the safety of again getting the buying habit, which is one activity that will improve general business.

I am not entirely free from pessimism, but I call that state of mind "conservatism." I am not over optimistic, so I also call that state of mind "conservatism."

From my pessimism I have eliminated "fear," and substituted "courage." To my optimism I have added "new hope and strength."

Don't expect too much too soon, but plan ahead for a five-year period. Look back over any previous five-year period and you will get new hope for the future; likewise if you now look ahead five years you can visualize another period of prosperity, and that picture will develop and strengthen the courage needed to meet the present conditions.

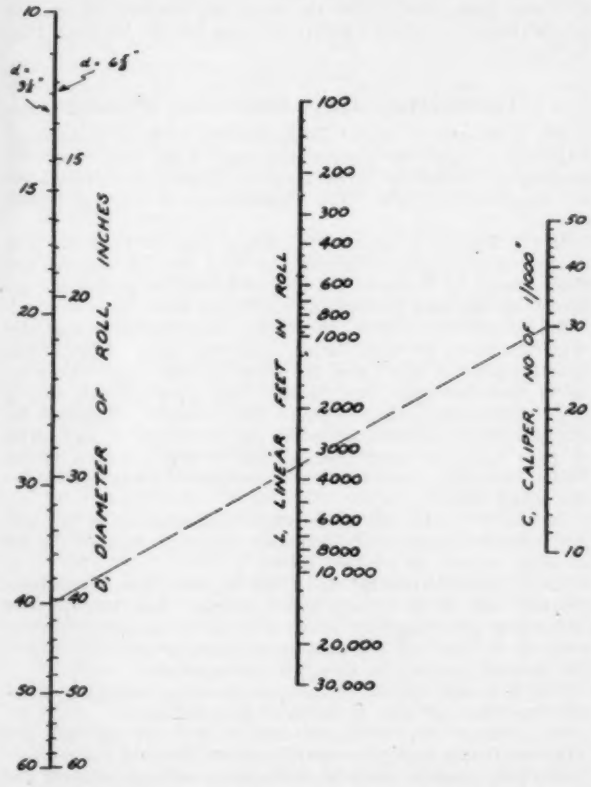
The future is going to be great!!

Practical Helps for the Mill Man

Roll Length Nomograph

D. S. DAVIS
The Mead Corporation, Chillicothe, Ohio

THE accompanying chart enables rapid calculation of the length (L) in feet of paper in a roll of test liner; given



the diameter (D) of the roll in inches; the diameter (d) of the core upon which it is wound in inches; and the caliper (c) in thousandths of an inch.

The area of paper in an end of the roll is evidently equal to the area of a rectangle the length of which is the length of the sheet in the roll and the width of which is the caliper of the sheet. That is,

$$\frac{\pi(D^2 - d^2)}{4} = \frac{12\ L\ c}{1000}$$

from which,

$$L = 65.45\ \frac{(D^2 - d^2)}{c}$$

The nomograph covers the common core diameters of 3½" and 6⅝".

The United Conveyor Corp., Chicago, Ill., has opened an office in New York City located at 101 Park Ave. This office will be under the direction of J. J. McNulta, who will be in charge of the New York and New England districts.

New Quarters of the American Paper and Pulp Association

The removal of the offices of the American Paper and Pulp Association and affiliated associations occupying space at headquarters, from 18 East Forty-first street to 370 Lexington avenue, New York, was effected on Saturday, December 27, and the association now occupies the major portion of the eighth floor of a new building, 370 Lexington avenue, which has an entrance as well on East 41st street. The Technical Association of the Pulp and Paper Industry, the Supply and Equipment Association, the Salesmen's Association of the Paper Industry, and the Cost and Pulpwood Departments now have commodious accommodations with the general association.

The general arrangement and layout of the offices and reception hall have many points of superiority as compared with the old quarters which the association had occupied for some 15 or 16 years. For one thing, the building is new and equipped with the latest modern conveniences. It occupies a site adjacent to the Grand Central Station, the Hotel Commodore, the Pershing Square Building and the Chanin Building, not to mention the Graybar Building, the Hotel Biltmore and other nationally known buildings.

Visitors are received in a large reception hall opening from the main lobby. Here the telephone switchboard and operator are stationed. It is planned to hold exhibitions of paper and paper novelties for 30-day periods in this hall, which is 40 feet long and 15 feet wide. Book cases will be arranged on the walls to accommodate a library so that the reception hall will have a most inviting and comfortable appearance.

The office of Jesse H. Neal, general manager of the association, occupies a choice corner position facing on Lexington avenue to the southeast. Extending back from this office are the office of Secretary C. W. Boyce and the general office in charge of Mrs. Rogers. Next come the offices of Statistician J. A. Kavanagh and his staff in the northeast corner. A mailing room, storage room and rest room complete this corner. A passage leads from the statistical department to the reception hall, at the other end of which is the office of T. J. Burke, director of the Cost Department. To the right along a passage way are the stenographers' room, the office of the Supply and Equipment Association, W. N. Wilkinson, president, and that of D. A. Crocker, secretary of the Salesmen's Association of the Paper Industry.

The Technical Association of the Pulp and Paper Industry, R. G. Macdonald, secretary-treasurer, occupies commodious quarters in the southwest corner of the building. Mr. Macdonald has his own private office and an adjoining office for the accommodation of his assistant, Miss Blair; a special storage room for association stationery and books has been provided on the other side of the hall.

All in all, the new quarters of the American Paper and Pulp Association make a favorable impression on the visitor. First impressions are always best and it is a good one which the visitor receives on stepping into the large salon which forms the Reception Room, Exhibit and Library of the association at 370 Lexington avenue, New York. The telephone number is unchanged, being Lexington 24502.

The Hano Paper Corporation, Brooklyn, is expanding its export business to cover Africa and the Orient. This firm has had considerable export experience in the Latin-American countries, and for this reason desires to amplify its foreign business.

MICHIGAN

Cost and Technical Men Meet

The Cost and Technical Association of the Kalamazoo Valley took up the general subject of heat and power at its December meeting.

John Wood of the Kalamazoo Vegetable Parchment Co. opened the program with a paper on "Distribution of Power Costs." Mr. Wood first explained the method used at Parchment for arriving at a kw. cost. The manner in which power is distributed was also explained. All large departments are metered both for direct and alternating current and in several instances where departments are small current users, they are grouped together on one meter and the cost proportioned to each department.

Steam is metered to the paper machine but since it is used in other departments principally for space heating they are all grouped together and then charged according to the square feet of floor space. In some instances high pressure steam is used and it is then charged up at the "cost of production" rate. Where exhaust steam from the turbine generator is used, it is charged at 40 per cent of the production cost, the remaining 60 per cent being charged to electric generation. On the basis on actual heat units left in the steam, this is penalizing the generator and giving the paper machine something for nothing, however, if the steam were charged out on an actual B.t.u. basis then the cost of generating power would be next to nothing and the cost of drying paper would be excessively high. Departments using lots of current and little steam would also be able to operate at exceptionally low costs.

The ultimate costs all come out of one pocket anyway and the Parchment company feels that the 40 to 60 per cent basis is the fairest to all.

There was considerable discussion of this paper and among the questions was one concerning radiation losses on a mile long high pressure steam line connecting mills Nos. 1 and 2. Mr. Wood stated that the line is made up of 10-inch pipe insulated to a diameter of 20 inches and on one large vertical expansion loop the snow will pile up on this exposed line and stand for days or weeks indicating very little loss from the line.

Mr. Wood also said that at the No. 2 boiler plant of his company they had recently installed two 1,000-hp. boilers and these are displacing five 500-hp. boilers in No. 2 plant and also five 300-hp. boilers at the No. 1 plant except in winter when one of the 500-hp. boilers is put on the line to care for heating requirements.

At the end of discussion, President Whittington introduced Mr. Mesick, head of the Chemistry Department of Kalamazoo Central High School. Mr. Mesick has made quite exhaustive studies of boiler waters and their conditioning and presented a very splendid paper on "Boiler Water Conditioning" wherein he described quite carefully the various methods of treating water to remove incrusting ingredients or convert them to a non-incrusting state.

The blackboard and chalk were used generously to give his listeners a vivid picture of the story he was putting before them.

There are some twenty different radicals to be combatted in the softening of water and there are a number of ways in which to remove or inhibit them. Mr. Mesick is very much in favor of external treatment at the present time, but says he is watching with much interest some recent installations such as the Studebaker plant at South Bend, Indiana, where exclusive internal treatment is being used.

As part of the illustration, reactions between the various softening agents used and the incrusting materials, were chalked up. This, of course, made the discourse doubly interesting and Mr. Mesick was able to put his message across to the best advantage.

Following the second paper, the matter of interstate meeting next May was taken up. It has been the policy of the club to unite with the Paper Technologists Club in sponsoring a joint meeting of the cost and technical men of the lake state principally, but everyone is welcome to attend. The only cost to those attending is for meals, hotel and transportation. No registration or special fees are charged. Mr. Whittington, whose term of office expired with this meeting was elected to serve with the new officers as a member of the special committee.

Plan for Interstate Meeting

There will be another Interstate Meeting in Kalamazoo this year. The general committee headed by Glen Ingling, of the Kalamazoo Paper Co., held its first meeting last week and started the ball rolling.

Individual members of the committee have been working on the program for sometime and it developed at this meeting that four of the necessary ten speakers have already accepted and it is practically assured that the entire program will be filled out by the time of our next issue.

The general outline of program will be the same as in previous years except that the Saturday evening dinner will be eliminated allowing visitors to catch earlier trains if they so desire.

Technologists Have Instructive Meeting

The members of Paper Technologists Club of Kalamazoo enjoyed a very instructive meeting when they met the evening of December 10 to listen to papers on "Calculation of Steam Costs" and "The Importance of Coal in Power Costs."

Harry Bradford, of the Rex Paper Co., covered the first subject quite capably, taking up first the allowances and assessments to be made because of coal storage yards. Interest on the land investment and taxes were here included.

A charge must be made on the buildings also and this was figured on an area basis. The total area of boiler and power plants is taken and the value of the whole. Interest, taxes and insurance are figured and proportioned to the boiler plant on basis of square feet covered. Interest, insurance, taxes and depreciation on boiler plant equipment is next added in and then to this total is added special boiler insurance, and flywheel insurance if some auxiliaries are steam driven.

Inventory is, of course, as important here as in the mill and interest, taxes and insurance must be figured on the average amount of coal on hand.

Labor is an important and third largest item. It includes salaries and wages of engineers, firemen and helpers, coal unloading and handling crew, also ash handlers. As the amount of coal and ash handling equipment is increased in the modern plants this item will be reduced.

The pro-rata portion of the compensation insurance, based on pay-roll must also be included in steam costs.

The largest item in steam cost is the coal and this is a very set figure being the actual cost on track at the door.

Various supplies such as chemicals, belting, wipers, etc., must be considered as well as repairs and repair materials. A proportional cost of the general manufacturing burden is added in at the last and the total cost of producing steam over a given period is arrived at. Dividing this figure by the pounds of water evaporated will give the cost per pound or thousand pounds.

Following Mr. Bradford was W. D. Langtrey, president of the Commercial Testing and Engineering Company, of Chicago, who prefaced the third speaker's formal paper by a brief informal resumé.

Mr. Langtrey first called attention to the greater care now being exercised in coal buying. He cited an instance of long litigation, just recently settled, wherein the controversy was over the difference of 150 B.t.u's per pound of coal. In this particular case, very exhaustive tests were made on the same coal over a period of weeks, both at the mine and again at the mill, to prove or disprove certain claims. The ultimate outcome of the litigation was not told, but the instance illustrated the greater care being exercised in the purchase of that largest item in steam costs, coal. Fifteen years ago a difference of 150 B.t.u's in the coal would not have been considered.

The coal mine operators are ever on the alert for methods of raising coal quality. One means, being used at many mines, is the washing of coal. This removes a large percentage of foreign matter which would tend to raise the ash content and reduce the B.t.u's.

Along with the efforts to raise quality has been the addition of combustion engineers to the sales staff with the idea of educating the consumers to the purchase of quality rather than price.

Coal has certain characteristics which make one grade suitable for one plant and a different grade suitable for another. These characteristics seem hard to define and in determining the most suitable coal it is usually a case of cut and try until the correct one is found.

Mr. Langtrey again stressed the point that coal is the biggest expense item in steam production; therefore, should be given careful consideration.

Following Mr. Langtrey, the president of the club, Max Bardeen, introduced Mr. Carroll, combustion engineer, with Mr. Langtrey's company, who presented a very comprehensive paper on the "Generation of Steam and Power."

The boiler plant handles thousands of dollars in fuel every year, and in many cases, probably in most cases, the correct distribution of this money is not known. There are many means of losing some of this money and Mr. Carroll said it would be surprising to know how many really large plants that should know, but do not know, their losses to the stack in unabsorbed heat, to the atmosphere by radiation and pop-offs, and through their grates to the ash pit as unburned coal.

Mr. Carroll criticised management to some extent for its apparent apathy to boiler plant conditions. He reminded his auditors that requests for better equipment for the machine room or beater room receive prompt attention by the executives while similar requests from the boiler plant are pigeonholed until something goes wrong.

The potential opportunities for saving are much greater in the power plant probably than they are in the mill. Many of the losses cannot be seen with the eye and therefore require special equipment for detection such as CO_2 recorders and draft gauges.

The paper mill power plant is really a base load plant and for that reason the efficiency should be higher and in considering this point the speaker criticized the engineers for letting the accounting department figure their costs and efficiencies and solve their problems.

More and still more instruments are needed for the most efficient operation together with intelligent use of those instruments. In a certain plant recently a large number of essential instruments were installed and the men trained to use them over a period of several months until the efficiency had been raised to a high level and maintained there for some time. The instruments were then covered and the men required to operate without being able to see the effects. The efficiency remained good for about a month and then began dropping off as the men gradually slipped back into the old habits. This was a very positive illustration of the value of instruments.

In the discussion that followed, the question was raised as to the use of powdered fuel. Mr. Carroll stated that in plants of 1,000-hp. and up, its use was gaining favor, but not so in smaller plants. Powdered coal requires more skillful labor and careful watching because losses can mount rapidly.

As a last parting admonition, Mr. Carroll said that by all means coal should be bought on specification and among the specifications should be the size of lump.

Following the instructive period, a short business session was held at which it was voted to have a big social night at the September meeting, next fall, in connection with the usual election of officers. The ladies are to be invited as guests of honor and dancing will follow the dinner.

Considerable discussion ensued after the report of a special committee appointed sometime ago to consider the advisability of becoming a section of T.A.P.P.I. The members of the club do not want to lose their identity as the Paper Technologists Club, but still are anxious to become a section. It was voted unanimously to became a section of T.A.P.P.I. providing the original name of the club can in some way be incorporated into the name of the section.

Papermakers Chemical Installs New Laboratories

Alterations are in progress at the Kalamazoo plant of the Paper Makers Chemical Corporation, where two new laboratories are being installed.

For sometime this company has been carrying on research work on synthetic sizing materials. The work has been carried on in the company's laboratories located at Lockport, New York. Experiments have been conducted jointly by three well trained men who are making rapid strides in this comparatively new field of sizing materials.

Harold N. Eastman, Ralph F. Irwin, and Earl A. Radant are being transferred from the Lockport plant to Kalamazoo where they will first install a plant for the commercial manufacture of synthetic sizing materials and will later occupy one of the new laboratories, to continue their research work on synthetic sizes. The transferring of these men to the local laboratory gives them a staff of nine, including A. C. Dreshfield who is in general supervision of all laboratory work.

The second laboratory being built, is to be equipped as a semi-commercial plant and will be capable of producing any of the company's products on a barrel lot scale. All equipment will be identical with the commercial plant as to design and operation but will have a maximum capacity of barrel batches.

Some Expressions in Answer to Correspondent's Questionnaire

Everyone is crying "hard times . . . poor business . . . panic," et cetera, but replies to a recent questionnaire sent out by our Michigan correspondent did not substantiate the above calamity howlings. A generous response was obtained and those not answering are probably the ones that have been hit the hardest. There should be no disgrace in the fact that your mill had a poor year during one so generally conceded to be far below normal.

Probably no mill in lower Michigan has run full time the past year, but some have operated 94 per cent of the time which isn't so bad during a "business panic," so-called. The lowest percentage reported is 69 per cent, which is a great deal better than the "howlers" would have you believe.

One mill president is inclined to be a trifle pessimistic when he says, "The paper business generally, has been very discouraging during 1930." It would hardly seem logical for him to speak thusly when we note that his mills ran 90 per cent of the time; however, his further qualifying statement perhaps explains it. He continues, "Decreased production has not been so much at fault as decreased prices, in face of material and labor costs which were not lowered comparatively." He hit the nail on the head, we believe, when he said that decreased prices in the face of upholding costs were the most at fault. Mills have been able to sell, but instead of sticking together and holding to their prices, they have started out to cut the other fellows' throats and usually ended by cutting their own.

There is quite often the feeling that we are worse off than the other fellow, meaning in this case, other industries, but one Michigan paper mill president takes exception to this rule and says, "The paper business in general has not suffered any more from the business depression than other basic industries," while another very prominent executive enacts the role of doctor and diagnoses the case as, "This paper business, like all other business, has had a slight attack of influenza," probably basing his opinion on the outstanding s y m p t o m s of that malady—chills and fever—which are likened to the spasmodic tendencies which business has shown the past year.

Winter weather may prove a good cure for this attack and things may look up this year. At any rate, one answer said, "surely it cannot be as bad as 1930," and the prediction is made by another, "low profits and a hard scrap to keep the machines going." This latter man is noted for his scrappiness, even when business is going good.

Optimism seemed to be the keynote of most of the replies

received and is probably best expressed in the words of one who makes it a point to study the opinions of others and quite often these others are able to look in from the outside and see things with a better perspective than those close up. This person states, "Statistical authorities agree that the depression of business has neared its close and that a steady but not sudden change will be seen during the coming year."

We are inclined to agree with the above quoted optimism and feel sure that the paper business will be much better in 1931 because, as one executive puts it, "The struggle of the past year has put our whole organization on its toes, and with just a little break in our favor, we can see no reason why we should not have a far better business in 1931 than we have had in 1930." This is all well and good if this man is taking into consideration that lots of business but no profit is no better than no business. It should be borne in mind that it is going to be necessary to strengthen prices in many lines and to accomplish this it is going to be necessary to curtail production for a time.

If paper mills would concentrate more on producing better paper and not so much on production, it would work to the benefit of themselves and the industry as a whole.

K.V.P. Presents 10-Year Service Awards

As had been the custom for many years past, officers and employees of the Kalamazoo Vegetable Parchment Company, united Wednesday morning, December 24 in observance of Christmas. The exercises which were held in the community house, were followed by the distribution of gifts, every employ participating in the generous awards from the company. The employees now number 1,000 and community house was packed to capacity. Music was in charge of Don E. McDowell and several Christmas hymns were sung, both by the choir and the assembled audience. The Rev. F. M. Thurston pronounced the invocation. Smith Burnham of the Western State Teachers College faculty delivered the Christmas message and the Rev. W. M. Puffer, D. D., pronounced the benediction.

An important feature of the program was the recognition of employees who have completed 10 years of service with the company. The class of 1930 numbers 23. Charles S. Campbell, president of the First National Bank and Trust Company, Kalamazoo, a member of Kalamazoo Vegetable Parchment's original board of directors, addressed the 10-year workers and handed them their special awards, together with their scroll of honor.

With the close of the exercises, officers, directors, and all employees in the 10-year class or longer had dinner at the community house.

Superintendents Hear Address on Pumps

On Thursday evening, December 18, the Michigan Division of the Superintendents Association gathered at the Columbia hotel, Kalamazoo, to enjoy a chicken dinner and listen to a very interesting talk by Mr. Bird of the Union Steam Pump Company of Battle Creek, Mich.

Mr. Bird prefaced his paper by the statement that "The Pump is a Symbol of Civilization" and then proceeded to talk on "The Development of the Pump." Probably the gentleman is right; certainly there has been great progress made in the art of handling liquids from the ancient treadmill to the modern centrifugal pump.

The art of handling liquids has followed along with the development of civilization and probably has contributed considerably to that development.

The pump is probably the most universally used piece of equipment. Absolutely every manufacturer is dependent on pumps somewhere in his process and in the paper industry they are too numerous to enumerate.

Mr. Bird emphasized the fact that probably 80 per cent of all the pumps in a paper mill are standard design; however, he also said, that the paper mill is the only plant using the stuff pump. This is a type of equipment peculiar to the paper mill and specially adapted to the use intended.

Up until 60 years ago pumps were single plunger type, but at that time the duplex pump was devised and since has been followed by the triplex.

Efficiency of pumps has been a matter of very recent consideration. So long as a water supply was obtained, the cost of obtaining it did not seem to matter. In this day of rising costs it has mattered, and considerable research has been carried on by the pump manufacturers to develop efficiency in pumps.

Mr. Bird called attention, however, to the fact that in a paper mill efficiency is not the prime consideration in a stock pump. Due to changing conditions it is far more important to have flexibility in a pump even at the sacrifice of efficiency.

The ideal centrifugal pump, which is one delivering a constant volume at a constant speed under varying heads, has never been and probably never will, be built. Even at that, the centrifugal pump is rapidly displacing the plunger type in every field, even as stuff pumps and will pump stock up to 4 and 4½ per cent consistency.

Discussion on the paper was quite general and Mr. Bird was kept rather busy answering questions.

Peter Brouwer was fatally injured December 21 when a cooker boiled over at the King plant of the Allied Paper mills, Kalamazoo, where he was employed.

❖ WISCONSIN ❖

Mills Optimistic but Make Conservative Plans

Although somewhat cautious in laying their plans for 1931, paper manufacturers of Wisconsin are generally optimistic and believe they will be able to accumulate enough orders to keep production on a steady basis. A number of mills closed down during the holiday period, in many cases for repairs and inventory, but are starting again with the expectation that operations will be steady. Some construction is in progress, one mill has started a new machine, and two mills down for a long time because of reverses are getting back into operation.

Most of the remodeling has been completed at the Menasha Paper Corporation, formerly known as Menasha Paper Mills Co., and production of strawboard on two machines is to be started within a week or two. The company has overhauled the power plant and equipped a new rotary room. Improvements thus far made will assist in keeping down manufacturing costs so the mill can overcome some of the difficulties encountered under previous owners and become a profitable enterprise.

Highly favorable business conditions are shown in reports issued by a number of mills. The Nekoosa-Edwards Paper Co., Nekoosa, finds its production and sales comparing favorably with 1929. Its pay-roll was $1,600,000, about the same as the previous year. The company confined its improvement program to a large pipe line to supply pure water for the Nekoosa mill from Nepco lake. Outside of a holiday shut-down, the Consolidated Water Power and Paper Co., Wisconsin Rapids, has had its four mills producing steadily and there is every indication this will continue during 1931. The Ahdawagam Paper Products Co., of the same city, was well ahead of a four-year average during 1929 and expects big business gains, partly due to its new light carton plant built and equipped within the last few months.

Enough orders are on the books of the Rhinelander Paper Co., Rhinelander, to keep the mill going steadily for several months on glassine, greaseproof papers and machine glazed sulphite. A new $100,000 wood room has just been completed and was placed in operation after closing down the mill for a few days to effect the change-over. The mill has gone through a virtual reconstruction, now having a new paper machine, power plant, bleaching plant, finishing department, four super-calenders and other additions to the finishing machinery.

One machine has been in steady operation at the Nicolet Paper Co., DePere, with 80 employees working nine hours a day. During the first half of 1930, the DePere Paper Manufacturing Co., DePere, operated at 100 per cent capacity.

The mill was in 90 per cent production during the last half and expects orders to pick up so that full schedule can be resumed.

Tomahawk Pulp & Paper Resumes Operation

After being down for nearly a year, the pulp mill of the former Tomahawk Pulp & Paper Co. at Kings Dam, near Tomahawk, Wis., has resumed operations. It was taken over by a new organization known as the Tomahawk Power & Pulp Co. Considerable repairing was done and some changes made to speed up production. Three eight-hour shifts are working steadily, helping to solve the unemployment problem. Mayor Frank Theiler, of Tomahawk, is general manager and Arthur Nickel again is in charge as superintendent.

The paper mill of the defunct Tomahawk Pulp & Paper Co. is still idle but the former owners have been working diligently to effect a reorganization. A public sale recently ordered by the court was deferred and the interested persons given until Jan. 17, 1931, to complete their plans and submit them to the court.

Tomahawk Kraft Increases Output

Another large mill at Tomahawk, the Tomahawk Kraft Paper Co., has completed installation of machine No. 2 and now has it in production. The mill has increased output from 45 to 100 tons of kraft daily, thus enabling the sulphate pulp mill to operate to its full capacity of 80 tons or more daily and giving a balanced manufacturing setup.

The new machine, built by Beloit Iron Works, is 156-inch with 144-inch trim, and the No. 1 is 132-inch with 120-inch trim. Dilts beaters, Bird pulp and paper screens, Vickery doctors and Eastwood fourdriniers are included in the new installations. Rod mills installed several years ago, the first in the state, have been pronounced highly successful. The company also met success in automatic remote control of its power stations on the upper Wisconsin river.

Twenty-eight kraft specialties are now being made, with printing service at the mill for customers desiring it. Officers are: President, A. L. Kreutzer; vice-president and general manager, S. B. Bugge; secretary-treasurer, D. C. Everest.

Northern Paper Mills Building New Laboratory

Construction has been started by the Northern Paper Mills, Green Bay, on a two-story chemical research laboratory, 106 by 32 feet in size. It will contain a complete pulp mill in miniature, as well as small equipment for a wood room, and testing apparatus for measuring, weighing and testing various woods. There will also be a small beater, ball mill, hand sheet mould, press and steam dryer and one or more drying ovens.

Space also will be provided for a general laboratory for moisture, corrosion and other tests, and for analysis of materials and fuel. There will also be a highly specialized constant humidity laboratory and three smaller laboratories for experiments on dyes, inks, fiber studies, dirt inspections, paper analysis, bleaching, composition, concentration and agitation. A complete research library also will be established.

It has been announced by Judson G. Rosebush, vice-president and general manager, that Dr. Merrill A. Youtz, Ph.D., has been engaged to take charge. He formerly was on the faculty of Lawrence College, Appleton, Wis., and devoted eight years to research work at the Standard Oil Co., Whiting, Ind.

During the year 1930, the Northern and its associated companies, the Tuttle Press Co. and the Northern Electric Company, operated on a 24-hour schedule continuously. They employed 793 persons and paid out in salaries and wages $1,258,272.

Safety Schools Close Successful Season

Safety schools in various paper mill centers are closing their winter sessions with banquets attended by hundreds who are being given recognition because of their interest in this work. Plaques were given to 174 at a banquet at Rhinelander, most of them to employees of the Rhinelander Paper Co. The speaker there was William Rainey Bennett, of Chicago. Wisconsin Rapids closed its season with 313 present at a banquet at which Elwood T. Bailey, of Los Angeles, Calif., spoke. Lapel buttons were issued to those faithful in attendance during the season.

Considerable commendation goes to employees of the Interlake Pulp & Paper Co., Appleton, a branch mill of the Consolidated Water Power & Paper Co. The mill has broken all records of the company and has to its credit more than 300 days without a lost time accident. The Stevens Point mill is rebuilding its former record and has 100 days to its credit. The year closed with a reduction of 50 per cent in the number of lost time accidents among the employees of its four mills.

Traffic Notes

Freight rates on paper board from Wabash, Ind., and Urbana, Ohio, to points in Wisconsin have been reduced through an order of the Interstate Commerce Commission prescribing rates equal to 25 per cent of first class rates. The changes go into effect Feb. 1, 1931.

Increases in rates on printing and wrapping papers from the Fox river valley of Wisconsin to Chicago have been postponed to April 1, 1931. The maximum rate hereafter will be 20 cents. Mills further north will have a rate of 23 cents.

Western Trunk Line carriers are attempting to set aside rulings giving Michigan Zone C rates to mills of the Fox river valley, and the latter are opening any change. These mills are enjoying the eastern scale under the present arrangement and see a possible shift to motor truck lines if the advantages are removed.

The Northeastern Wisconsin section of the American Chemical Society has been organized at Appleton, Wis., and will include chemists from eight counties. Officers are: Dr. Harry Lewis, chairman; Prof. L. A. Youtz, vice-chairman; Dr. L. C. Fleck, secretary-treasurer. Twenty-one members have been enrolled.

Mills Co-operating for Timber Preserves

Realizing that each year makes the pulpwood and timber supply a more serious problem, various mills and conservation agencies are working with all possible speed to establish timber preserves and start reforestation on an immense scale. Already the Wisconsin Public Lands Commission has approved the sale of 1,000,000 acres of forests and cutover lands to the United States government, to be set aside as forest preserves. The total thus far accepted by the federal forestry division is 930,000 acres. A new forestry nursery will be added at Rhinelander, Wis., to produce 10,000,000 young trees annually. About 15,000 acres of cutover lands will be planted annually. The budget bureau in Washington is releasing $100,000, most of which will be used for labor on this project. Among the tracts recently added are: The Namekogan, in Washburn and Douglas counties, 327,105 acres; the Oconto, in Oconto and Langlade counties, 176,900 acres, and the Mondeau, in Taylor county, with 115,600 acres.

Privately owned lands also are being set aside in large acreages for forest growing, under the state law which exempts them from property taxes until the timber is cut. Last year 100,000 acres came under this law. The state is now considering applications on 140,000 additional acres.

Fire protection also will be given major consideration. Eleven fire patrol districts have been created by the Wisconsin Conservation Commission, giving fire fighting service to 1,000,000 acres. Airplanes are to be used in patrolling during dry season. Forest roads will be closed to travel in dangerous periods. A school for fire fighters will be conducted, and additional equipment provided.

One of the manufacturers co-operating extensively in this work is D. C. Everest, vice-president and general manager

of the Marathon Paper Mills Co., Rothschild, Wis. He has been appointed by President Herbert Hoover as a member of the National Forest Reservation Commission, and the thirteen-man timber conservation commission.

Lake States Section T.A.P.P.I. Meets

The monthly meeting of the Lake States Section of T.A.P.P.I. took place December 9, 1930, at the Menasha hotel in Menasha, Wisconsin. About 75 members attended this meeting and a lively discussion followed the presentation of the three papers.

W. H. Anderson, of the Westinghouse Electric Company, gave a very interesting paper in which he discussed the various papers used by the electrical industry.

A. H. Thurer, Appleton Woolen Mills, spoke on paper and wet machine felts, while W. E. Buchanan, Appleton Wire Works, spoke on fourdrinier wires.

A standing vote was taken on the feasibility of having the January meeting at Stevens Point, and it was decided that Menasha continue to be the meeting place of the section. Steps were also taken to try to get more men from the Fox river valley to attend the meetings.

Due to the very incomplete mailing list of the section, it is impossible to reach the various men in the industry who would be interested in attending these meetings. The men the section is very anxious to have at these meetings are managers, superintendents, assistant superintendents, foremen, technical men, cost men, and engineers. It is not necessary that men belong to the section to attend meetings. The dues are only $1.00 per year, and all men wishing to get on the mailing list can do so by sending $1.00 to George Hrubecky, John Strange Paper Company, Menasha, Wis.

The next meeting will be held January 13, 1931, at the Menasha hotel, Menasha, Wis., at 6:00 p. m. The papers given will cover the subjects of the manufacture and use of rosin size and lubrication.

Building operations are well under way on a one-story building, 75 by 160 feet for the School Stationery Corporation, Menasha. The company will manufacture an extensive line of school supplies.

The Institute of Paper Chemistry at Lawrence College, Appleton, Wis., expects to have a building of its own by fall, according to announcement of Dr. Otto Kress, director. It is now in temporary quarters. Another addition to the staff is Dr. Ben W. Rowland, appointed as research associate and as associate professor of colloidal chemistry, a new branch of the Institute's work. He formerly was with Goodyear Tire & Rubber Co. Another scholarship of $500 has been added to the list, a gift of Moore & Munger, clay dealers. It has been awarded to E. D. Amstutz, a graduate of Wooster College, Ohio.

According to an amendment to articles of incorporation filed with the secretary of state, the Bergstrom Paper Co., Neenah, Wis., has increased its capital stock from $700,000 to $1,500,000. The amendment is signed by John Bergstrom, president, and Nathan Bergstrom, secretary.

Action has been deferred by the Dells Pulp & Paper Co., Eau Claire, on a plan to sell its logging rights on several large timber tracts in northern Wisconsin to the proposed New Dells Lumber Co. The company has agreed to re-open the negotiations when business conditions are more favorable. The plan was to supply the Dells paper mill with all by-products of the sawmill so as to utilize to the limit all wood which had been logged.

The death of Mrs. Oscar Thilmany, widow of the late Oscar Thilmany, founder of the Thilmany Pulp & Paper Co., Kaukauna, Wis., occurred recently at Frankfort-on-the-Main, Germany. The family had resided in Germany for the last 20 years.

PACIFIC COAST

WASHINGTON

Pulp and paper mills in this state have not as yet curtailed or abandoned operation to the extent that is true in the exclusive lumber industry, although most plants are working either on a short-week schedule or intermittently. The Grays Harbor Pulp & Paper Company's Hoquiam plant is working four days a week at present and the new plant of the Olympic Forest Products Company at Port Angeles has been working five-day weeks at intervals.

Application has been made by the Pacific Straw Paper & Board Company, Longview, for a permit from the Portland office of the War department engineer, to construct two intakes from the Cowlitz river in front of their plant at Longview to take water from the Cowlitz for plant operations. The work consists, according to the proposal, of laying pipe on a trestle runway extending into the river about 100 feet channelward of the high water above the shore line and to a height of about 21 feet above low water.

James M. Hector, who for a year has been assistant manager of the newsprint mill of the Washington Pulp & Paper Company, Port Angeles, died early in December.

The Rainier Pulp & Paper Company, owned by the Zellerbach interests, is reported to be considering removal of its plant from Shelton to Port Angeles, where it already holds property. Citizens and business interests in the Shelton district are exerting active effort to persuade the company to remain, but it has encountered serious complications from its Shelton location due to the adjacent oyster beds and clam lands. It is said 18 damage suits have been filed by various individuals and agencies totalling $1,200,000, and the proposed move would create more satisfactory operating conditions.

University May Have Forest Products Laboratory

The University of Washington will try to establish a forest products laboratory on the campus in the near future through a program of legislation which will be presented to the present legislature by representatives who have long sensed the need of such an institution in the interest of northwest industries.

The University has already been in close contact with the pulp and paper industry, Dr. H. K. Benson, now on leave of absence, having acted as secretary of the Pacific Coast Section of T.A.P.P.I. since its organization. Likewise, the board of directors has included a man allied with the pulp and paper industry, W. N. Winter, of the Puget Sound Pulp & Timber Company having recently been appointed by Governor Hartley to fill a vacancy made by the resignation of A. H. B. Jordan, vice-president and superintendent of the Everett Pulp & Paper Co., who has served on the board for four years.

J. C. Price, member of the legislature from Skamania county, has stated that he will devote emphatic efforts toward getting some sort of legislation to improve wood pulping, wood distillation and other experimental activities to provide outlets for waste materials.

H. S. Fuller with offices in the Exchange building, Seattle, has been appointed representative for the Carthage Machine Company, which has placed equipment in a number of new western mills in recent months.

A. H. B. Jordan, of Everett, and associates, have organized the Conversion Co., Inc., of Seattle, and report is that a paper converting plant may be operated by the company in

the near future. R. H. Coshun, with offices in the McDowell building, Seattle, is representing the interests of the company at present. Other Seattle men interested are E. B. Cassett and E. J. Lane.

Backus-Brooks Revive Power Project

The Backus-Brooks paper interests of Minneapolis still have plans for entering the industrial field in Lewis County as indicated by the renewal of a permit taken out five years ago for a power project on the Cowlitz river, which would have expired in February, 1931. An extension of nine months was granted on this water permit December 23 and it is expected that further announcement of this proposed hydro-electric development will be made before long.

The project is to be located in the Mossyrock-Mayfield district of Lewis County and the estimated cost is understood to run into millions, since a vast manufacturing center to use all the power generated would eventually materialize, according to officials.

Backus-Brooks have already spent large sums in borings and other preliminary surveys which would determine the feasibility of the proposed dams, and it is said that the Sanderson-Porter interests have also spent approximately $300,000 in similar tests abutting the Cowlitz which at first indicated a conflict of operations, but which later appeared to be an arrangement of mutual interest.

CALIFORNIA

Paper Companies Show Increase

Crown-Zellerbach Corp. showed increase in both gross and net profits in the quarter ending October 31, 1930, as compared with the three months just preceding, according to a financial statement released early in December. This increase also affected Crown-Willamette Paper Company and Pacific Mills, Ltd., and is due, according to officials, to new lines of diverse paper products added to the output of the various mills of these companies, and economies instituted in operation.

Crown-Zellerbach Corporation reported net income—after charging all bond and other interest depreciation, depletion, income taxes and deducing minority stockholders interest—of $1,530,780 for the six months ended October 31, 1930.

The highly specialized lines now being introduced by the company resulting in increased profits, is expected to help offset the price of newsprint which was reduced October 1, according to officials.

A consolidated earnings statement of the Crown-Willamette Paper Company and of Pacific Mills, Ltd., released with that of the Crown-Zellerbach Corporation, shows net income of $1,366,532 for the six months ended October 31, 1930, after charging all bond and other interest, depreciation, depletion and income taxes.

Officials express satisfaction at the conditions of these respective companies in view of the favorable report.

Will Begin Work on Alaskan Mill this Year

George T. Cameron, publisher of the San Francisco Chronicle, who with Harry T. Chandler, publisher of the Los Angeles Times, is on an eastern trip, it is reported in the interest of the new Alaskan power developments for which permits were granted recently by the federal power commission.

These newspaper interests received permission to build a series of dams on Crater, Long and Dorothy lakes in Southeastern Alaska to develop 80,500 hp. estimated to cost $5,000,000, including transmission lines, for the operation of newsprint mills whose rated output is said to be 200 tons a day. The completed plant is estimated to cost $10,000,000, with work to start this year.

The above permits and projects were announced at the same time that power development of the Zellerbachs near Ketchikan became topics of intense interest in Pacific coast paper circles. I. and J. D. Zellerbach, heads of the Zellerbach Paper Company, received permits to develop 48,000 hp. which is also designed to furnish power for operation of newsprint mills representing $10,000,000 investment, although no dates have been set for start of this latter project.

A. D. West has been appointed representative of the Longview Fibre Co., in the southern California territory working out of an office in Los Angeles, and will handle fiber board products from the Longview, Wash. mill of the company.

The death of Charles Kahn, for six years secretary-treasurer of the Pacific States Paper Trade association, has brought a sense of loss to the paper trade in the West and has inspired high tribute to his life and personality. Members of the association especially are filled with deep regret at the passing of so capable and worthy a member who only a short time ago returned from attending the annual convention of the National Paper Trade association, bringing helpful report and suggestion for adaptation in the local association.

Work on Richvale Plant Progressing

C. A. Kieren, general manager of the Pacific Coast Pulp & Paper Company, which is building a rice straw mill at Richvale, will make some purchases of equipment while on an eastern trip. This plant includes a boiler house, digester building, machine room, beater room, recovery building and other minor units for an efficient plant.

The Rice Growers association which produces about 70,000 tons of rice straw annually, co-operated with the company in this project by donating 22 acres of land for the site. The plant will use about 16,000 tons the first year with a daily production of 50 tons.

D. M. Thompson of Santa Monica is president of the company; P. Swan of Portland is vice-president; A. J. Lofgren of Richvale is treasurer, and besides Mr. Kieren there are directors—H. K. Sears of Chico and M. A. Murphy of Los Angeles.

David J. Crikelair, for the past 16 years associated with the mill and sales department of the Los Angeles office of the Zellerbach Paper Company, has resigned his position and is succeeded by John Ganssle. Mr. Crikelair has joined the Capital Envelope Company as a partner of George J. McNamara. This concern has been operating in Los Angeles for the past ten years.

L. C. Calkins, formerly with the Butler Paper Company, but more recently associated with the San Francisco office of Blake, Moffitt & Towne, has been made manager of the company's office in Arizona and will be located at Phoenix.

A. M. Olinger, manager of the San Francisco office of Carter, Rice & Co., has moved from 175 Fremont street to larger headquarters in the Christie building.

The Salinas Valley Wax Paper Company, which operates waxing plants in various fruit and vegetable districts in California and Arizona, used more than 1,000,000 pounds of kraft paper from the plant of the St. Helens Pulp & Paper Company in Oregon, this year. T. G. Emmons and Chas. E. Goetz are proprietors of the company.

Fibreboard Products Shows Gain

Fibreboard Products, Inc., with manufacturing and converting plants in several towns in California and Washington, has showed a marked gain during the ten month's period ended October 31, 1930, the increase being more than ten times the dividend requirements on its 15,000 shares of $100 par 6 per cent prior preferred stock, the only issue still in the hands of the public.

Fibreboard Products is controlled jointly by Crown-Zellerbach Corporation and Paraffine Companies, Inc. The company has centralized its efforts in developing specialized markets

for paper containers and other shipping uses, co-operating with shipping firms in working out best designs and weights for various kinds of cargo. The output includes besides the heavy boxes and vegetable crates, egg cases, paper cans and wall board.

IDAHO

Study Utilization at Forest Products Laboratory

The chemical utilization of wood products is now being made a subject of study in the forest products laboratory in the University of Idaho under the direction of Dr. E. E. Hubert, coming as a result of an expansion program in the school of forestry which includes wood chemistry.

Some of the possibilities may be the development of a new fiber insulating board, methods of making both waterproof and fireproof materials of this kind, and uses for resins, oils and other chemical extractions.

OREGON

Bonuses totaling several thousand dollars were distributed by the St. Helens Pulp & Paper Company to employees preceding the holidays, the list including 200 who had been with the company one year or more.

Improvements now going forward at the St. Helens plant of the Jaite Company, manufacturers of paper cement bags, include two large new machines, a ten-ton press for printing and a tuber which will add considerably to speed and efficiency.

Max Boehm, who recently resigned as superintendent of the Sitka Spruce Pulp & Paper Co., Empire, has returned to his former home in the East. D. Genoud, who has had a number of past connections with northwest pulp and paper interests, succeeds Mr. Boehm.

Mead Sales Company of Chicago has been appointed eastern agent for lines of the Spalding Pulp & Paper Company, Newberg.

A. L. Raught, representing the Weyerhauser interests, now building a pulp mill at Longview, Wash., Governor Norblad and M. P. Hoy, master fish warden, held a meeting in Salem last month and arranged to withdraw a recent complaint filed by state interests against a proposal of the Weyerhauser Company to dump waste from the pulp mill into the Columbia river. Mr. Raught explained that such waste would be made harmless through the installation of cesspools in which the refuse of the plant will be treated and diluted 150 times before reaching the river.

February Cost Meeting

In continuance of the plan developed at the first semi-annual meeting of the Cost Department of the American Paper and Pulp Association, held at Buffalo, N. Y., on November 20 and 21, 1930, the second meeting will be held at the Pennsylvania Hotel, New York City, on Tuesday and Wednesday, February 17 and 18, 1931.

The proceedings will open at 10:00 a. m. on Tuesday, February 17, under the chairmanship of Ralph B. Hersey of the Cost Committee, and the entire day will be devoted to examining reports and generally planning work to be carried out, in connection with the plan to develop greater uniformity in cost and accounting procedure in the pulp and paper industry. James A. Reilly, assistant comptroller of the American Writing Paper Company, Inc., is chairman of the Special Committee formed for the purpose, and will call on the chairmen of the various sub-committees for progress report, at this meeting.

Tuesday evening there will be a dinner meeting of the Cost Committee, details of which will be announced later.

Wednesday morning, following an open forum from 9:30 to 10:00 a. m., addresses will be given by Messrs. Jesse H. Neal, general manager, Charles W. Boyce of the Pulpwood Department, Clarence M. Baker, Engineering Department, and J. A. C. Kavanagh of the Statistical Department, all of the American Paper and Pulp Association, which addresses will be short and designed for the purpose of acquainting the accountants with the work of these departments, in view of the fact that it is the accountants, who are usually called on to reply to questionnaires, etc., received from the association's officers.

The usual luncheon meeting for Executives interested in accounting and cost work will be held at 12:30 p. m. on Wednesday, February 18, 1931. At this meeting, as he has done for the past three or four years, Dr. E. O. Merchant has again kindly consented to give an address on "The Business Outlook for the Pulp and Paper Industry in the new year." It is also planned to get a prominent executive to give an address on the importance of unifying cost and accounting in our industry. The afternoon session will be devoted to planning the future work of the Cost Department.

New Catalogues, Books and Publications

Allen-Sherman-Hoff Co., Philadelphia, Pa.—This company has prepared catalogue No. 1230 to show the application of its Hydrojet system of ash removal to the various types of fuel burning furnaces. It also explains the functions and operation of the principal parts of the equipment. The advantages of this system are described in a separate catalogue, No. 1130, and while ash handling is the theme, these same benefits can be obtained in the handling of other granular or powdered, raw or refuse materials.

Brown Instrument Co., Philadelphia, Pa.—Brown Electric Tachometers is the subject of a new catalogue, No. 46, which contains 16 pages with illustrations. The descriptive matter covers Brown indicating and recording tachometers in various models, together with the electric generators used in operating same. There are also illustrations and data covering standard applications of this equipment. Copies will be sent gratis to any one specificially interested in these instruments.

Fuller Lehigh Company, Fullerton, Pa.—The new Type B pulverizer is described and illustrated in Bulletin 5-80 recently issued by this company. The bulletin is well illustrated and describes in detail the construction and operation of the mill. The method of obtaining pressure between the balls and the grinding rings, any amount desired, is also illustrated. Copies on request.

W. A. Jones Fdry. & Mch. Co., Chicago, Ill.—A special bulletin covering the new line of worm gear speed reducers developed by this company has just been published. These reducers are for small electric motor drives, capacities up to seven hp., ratios 5-1 to 50-1, and they supplement the Jones heavy duty line of speed reducers. Copies on request.

Philadelphia Quartz Co., Philadelphia, Pa.—"Silicate of Soda in Paper Making" is the subject of a late bulletin issued by this company, well-known manufacturer of silicate of soda. This booklet sets up the advantages of silicate sizing and presents other uses for silicates in the paper mill, such as capping rolls, hardening concrete, lining digesters, thinning clay and treating water.

Saranac Machine Co., Benton Harbor, Mich.—Receipt is acknowledged of a general catalogue covering this company's complete line of package stapling machinery. This catalogue is attractively bound in a loose leaf binder and well indexed.

The Sinclair Company, Holyoke, Mass.—In an interesting booklet just published, this company, one of the leading manufacturers of dandy rolls, illustrates and explains the various important steps in the manufacture of the dandy roll.

United Conveyor Corp., Chicago, Ill.—This company's vitrified, Glazed Tile Ash Storage Tank is described in a new catalogue just received. The advantages in design of the United tank are set forth, details of construction, and complete information as to size and capacity for ordering. There are also a number of diagrams and illustrations.

Worthington Pump & Machinery Corp., New York City—This company has just issued a new publication featuring its vertical triplex power pumps. The construction of the different types of these pumps is taken up in detail, and profusely illustrated. There are many views of typical illustrations and useful tables of data.

Writing Paper Manufacturers' Association—This association, with headquarters at 95 State street, Springfield, Mass., and of which E. H. Naylor is secretary-treasurer, has just distributed among a selected list of upwards of 1,000 paper merchants, a new telegraph code book, which will become the regular code used by the writing, cover and book paper mills. The code is printed on a good grade of rag paper and is so arranged with regard to typography and code words as to make for the utmost legibility. Code A is a general code covering various phrases used in the trade, the phrases being grouped according to subjects. Thus there are phrases covering sizes, roll widths, substance numbers, quantities, specifications, packing, trimming, order phrases, prices and terms, etc. The publication is one which will meet with a good reception by the trade, both manufacturers and merchants. We almost forgot to mention that the inside cover of the code is equipped with a pocket in which may be placed a list of special code words for a mill's own individual lines.

Canadian News

Newsprint Situation Unchanged

The month of December has passed and 1930 has closed without bringing any new developments in the situation of the Canadian newsprint industry. Rumors, however, have not been lacking, apparently emanating chiefly from New York. None of them have been confirmed, while some of them have been flatly contradicted by the interested parties.

One of the "announcements" was to the effect that E. W. Beatty, president of the Canadian Pacific Railway, had been named arbitrator to decide on plant valuation in connection with the proposed big newsprint merger. Inquiry from Mr. Beatty, who was in Chicago at the time, brought forth the very clear statement that he had received no proposal that he should act as arbitrator, either from the newsprint interests themselves or from bankers interested in the industry.

Rumors were also afloat suggesting that Price Bros. & Co. would enter the super-merger of which so much is being heard. Col. Price, president of the company, stated the position of his company in very unequivocal terms: "We will not join a merger or consolidation. We re-affirm definitely and emphatically our determination to maintain the independence of position which this company has occupied for more than 100 years. We offer a high quality of newsprint from three modern mills with a daily capacity of over 1,000 tons. We extend to all the same terms of purchase and our price will be as low as the lowest contract price of any important North American producer."

It is also stated that the Newsprint Institute has at last abandoned all attempt to restrict competition for business; that is to say, members are allowed to canvass the customers of other members, and get all the business they can without any thought of allotment of orders, the only restriction being that prices must be maintained. Thus the members will do in the open what has long been done quietly. How the restriction regarding price maintenance will work out remains to be seen; but there is a feeling that aggressive companies, while nominally maintaining prices, will know how to offer "other considerations." As a matter of fact, it is stated that some prominent newsprint men would actually welcome active competition in the way of price-cutting as they feel this would prove a short cut to the solution of the problem.

As regards the future of the Newsprint Institute, there is much speculation. It has not been officially disbanded, and the possibility appears that it will be kept going with the object of keeping members to price maintenance and also of collecting and distributing information bearing on the newsprint industry, though this is already being done quite completely by the Canadian Pulp and Paper Association and the Newsprint Service Bureau.

The recent declaration of the regular quarterly preferred dividends by a number of companies, as reported in these columns last month, has had a beneficial stabilizing influence. Manufacturers seem to feel that there will be a sufficiently strong turn in business at the beginning of the present year to be reflected in higher newsprint consumption, and gradual increase in demand is expected. It will be sometime, however, before higher newsprint prices will be fixed.

During November, Canadian newsprint mills produced 201,703 tons of paper and shipped 213,673 tons, as compared with 213,817 tons and 195,490 tons, respectively, in October. Though the actual production was 12,000 tons less in November as compared with the previous month, the rate of operation increased from 67 to 67.6 per cent of rated capacity. In view of the severe business depression which has prevailed during the past year, it is very encouraging to note that the Canadian production of newsprint during the first 11 months of 1930 was only 7 per cent below that of the corresponding period of 1929; and it augurs well for the benefits which the industry may hope to derive when business starts once more on an upward trend.

Preferential Freight Rate on Russian Pulpwood Removed

Effective December 15 last, the Canadian National Railway system removed the preferential rates to Russian pulpwood shipments passing through Canada on its way to northern New York State. This action was taken following publicity given to the preferential tariff which permitted the Russian product to be handled cheaper than the Canadian product. The railway's action is considered as an important victory for the Canadian Pulpwood Association. In defending the preferential rate, prior to the announcement of its cancellation, R. L. Burnap, vice-president of the C. N. R., asserted that the market had already been lost to Canadian producers at the time the preferential rate was put into force, and that the Russian pulpwood was reaching its destination through the port of Albany; the Canadian National did what it could to secure the handling of the business and made a special rate one-half per 100 pounds lower, and the Canadian Pacific took similar action to meet the situation through the port of Three-Rivers.

Mr. Burnap wrote R. P. Bell, manager of the Pulpwood Association, advising him of the removal of the preferential rate, and stated that he trusted the action of the railway would remove any feeling the Association had that the railway was discriminating against any Canadian pulpwood shipper.

Annual Meeting of Association Announced

Contrary to reports recently given out that there would be no annual meeting this year of the Canadian Pulp and Paper Association, announcement is now made by A. E. Cadman, secretary of the association, that the regular business sessions will be held as usual Friday, January 30, but the luncheon and banquet will be omitted.

The meeting of the Technical Section will be held on Wednesday the 28th; the Woodlands Section, Thursday, the 29th. The Technical Section meeting is cut down to one day instead of two, as in former years.

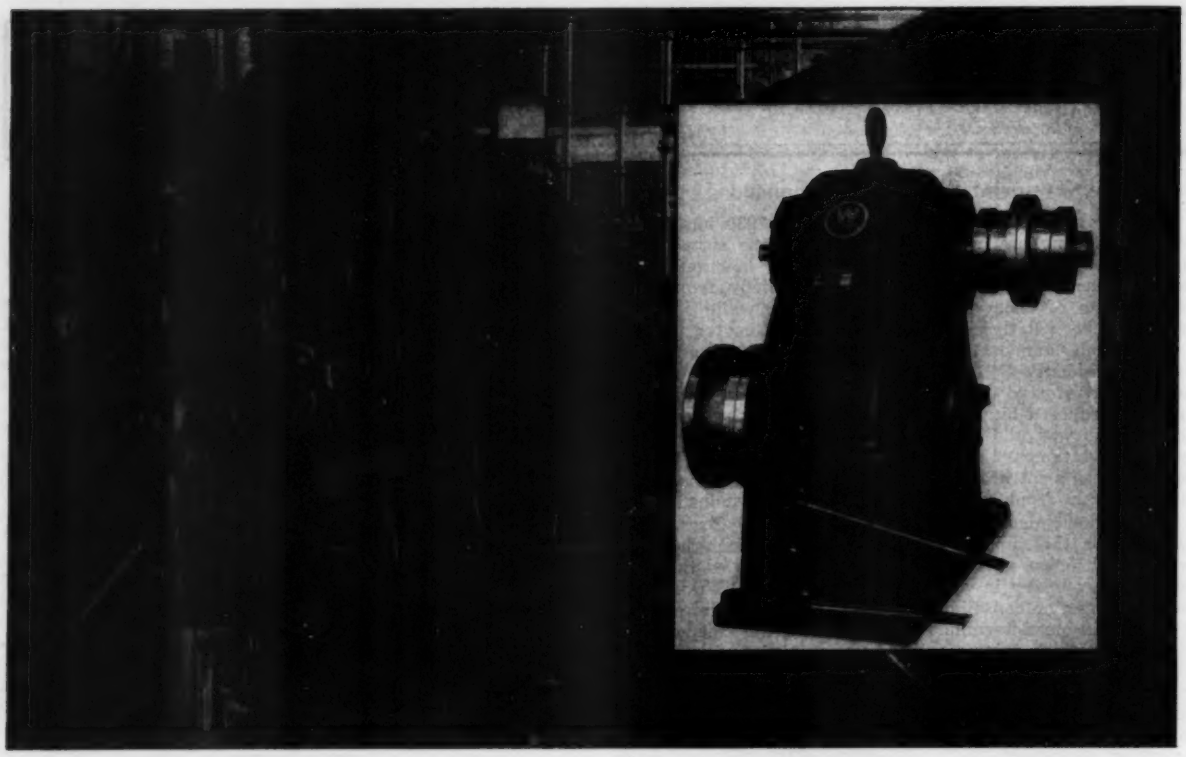
Canada Supplies Most of South African Newsprint

The latest figures for the consumption of paper and boards in South Africa show that, whereas a few years ago Great Britain had a not inconsiderable foothold in this market, her trade has dwindled down to almost nothing at all. She is not the only one to share this fate, for the stress of competition has to all intents and purposes eliminated Germany and Scandinavia. South African purchases have been fully maintained, and even increased, but it is now Canada which has to an overwhelming extent captured the market.

The imports of newsprint into South Africa rose from 328,556 cwt. in 1928 to 349,082 cwt. in 1929, though the effect of the price slump is seen in the values, having fallen from 238,312 pounds in 1928 to 230,795 pounds in 1929. Canada supplied no less than 247-874 cwt. last year; Sweden came next with 83,171 cwt.; Britain's share of the remainder was 3,112 cwt. and Germany's 13,131 cwt. And the decline of Canada's competitors is apparent in all the other lines.

Duty on Foreign Periodicals

For several years there has been a feeling among Canadians that the free entry of large volumes of advertising in magazines showing foreign goods is placing the Canadian manufacturer at a disadvantage. An early readjustment of the matter now seems likely. It has been reported from Ottawa that, with the twofold purpose of increasing revenue and giving further protection to Canadian manufacturers, it is almost certain that the present government will impose some form



These Timken Bearings Have Run 70 Times the Life of the Average Automobile

The pinion bearings in the 6 Westinghouse-Nuttall gear reduction units at the Washington Pulp and Paper Company have each rolled up the enormous total of over 2,338,000,000 revolutions, and a recent check-up shows that they are good for many millions more.

Loaded 100% of their Timken catalogue rating, they have averaged 6¼ days per week, 24 hours a day since they were installed in April, 1923.

The total distance traveled by each of these bearings is the equivalent of driving an automobile more than 3,500,000 miles, whereas the average automobile travels but 50,000 miles during its entire life.

A worthy tribute to Timken stamina! Don't you want this same unequalled endurance in your speed reducers, Jordan engines, paper machines, Fourdriniers, pulp machines, and dryers? The Timken Roller Bearing Company, Canton, Ohio.

TIMKEN *Tapered Roller* **BEARINGS**

of duty on periodicals entering Canada bearing a large amount of advertising of foreign-made goods.

The principal target of this move would be a group of United States weeklies, and as the duties are expected to be imposed on a percentage basis, all publishers would be forced to furnish advance copies to the Department of National Revenue for appraisal.

QUEBEC

Canipco News

On December 4 the Quebec Public Service Commission heard the claim of Freeman T. Cross, lumberman of Farm Point, against the Gatineau Power Co., for $675,000 with interest and costs, on the ground that, when the Chelsea Falls development of the hydro company was completed, a water power he owned at Cascades was submerged. The claim first went before the Commission early in 1929, but has been subjected to a number of delays. In his statement of case, Cross sets forth that it is estimated that "at least 15,000 hydraulic horsepower has been submerged and destroyed," and that the head of water was at least 14 feet "with the present regulated flow of not less than 10,000 cubic feet per second."

International Paper has announced to its contract customers that the price of newsprint for 1931 would be unchanged. This announcement was prefaced by a letter to customers in which the company reviewed newsprint production and consumption over a period of years. In this letter, International Paper pointed out that in the last 20 years the center of production has shifted from the United States to Canada, so that while in 1910 the United States produced practically all of its newsprint consumption, in 1930 it has produced only about 37 per cent of its requirements.

The output of electrical energy of the International Hydro-Electric System, a division of International Paper and Power Co., during October was the greatest for one month in the history of the system, exceeding that of October 1929, the previous high month, by 7 per cent. In the first ten months of 1930 the output of the System was 10 per cent greater than in the first ten months of 1929, and 49 per cent greater than the output of the present plants of the System during the first ten months of 1928. While the combined output of electric energy of all central station power plants in the United States and Canada in September last—the latest figures available—decreased 4 per cent under their output of September, 1929, the output of the present plants of International Hydro-Electric System increased 6 per cent.

The James Maclaren Lumber Co. has signified its willingness to surrender back to the Quebec Government its rights to an island lying in the middle of its timber limits. The only condition attached to the return is that the Government shall hand over the property to the Boy Scouts as their national and permanent camp home. The island is two miles long by four-fifths of a mile wide, and over 1,000 acres in area.

Scutan Products Now Being Made in Canada

Scutan waterproof papers had their inception some six years ago through the formation of the Scutan Co., Inc., of New York, when an entirely new process of waterproofing paper was developed and patented. From the original plant in Brooklyn, N. Y., now closed, and to be closer to a source of supply, this equipment was transferred to Hudson Falls, N. Y., where Scutan waterproof papers are being produced for their many consumers in the United States.

Inquiries for these products having developed from Canadian consumers to an extent which indicated a sizable outlet in this country, it was decided about a year ago to install a separate and distinct Canadian plant in Montreal, where the entire line of Scutan products could be produced from Canadian basic materials and by Canadian labor. About February 1 last, a location was selected and equipment secured with this installation completely assembled for production which began about August 1, and the first run of raw paper was scutanized. The plant equipment was furnished in part by the St. Lawrence Welding Co. and the Dominion Engineering Works.

The directorate of the Scutan Co. of Canada, Ltd., includes: R. B. Van Horne, president; James Reid, vice-president; H. W. Sainsbury, secretary-treasurer; John Brunton, general manager; C. H. Featherstonhaugh, director. The products of the Canadian company are distributed to the trade within the Dominion by the Creo-Dipt Co. of Canada, Toronto, Ont., with branch offices and representatives throughout Canada.

F. H. Andrews, who for the past twelve years has been assistant groundwood superintendent of the Belgo Division of Canada Power and Paper Corp., has left Shawinigan Falls for Grand Falls, Nfd., where he has accepted a position with the Anglo-Newfoundland Development Co.

The St. Maurice Division of Canada Power and Paper Corp., at Cap de la Madeleine, was closed down on December 13 for an indefinite period. The company has taken steps to prevent, as far as possible, distress among employees affected by the order.

At a meeting of the Dominion Commercial Travellers' Association held sometime ago in Montreal, Major Edgar T. Reynolds, director and sales manager of MacFarlane Son & Hodgson, Ltd., was elected president, while J. P. Rolland, vice-president of the Rolland Paper Co., Ltd., was re-elected treasurer. Mr. Rolland is a past president of the association; and his father also, during his lifetime, served a term as president. Major Reynolds has been a member of the board for about six years.

Joseph A. Bothwell

An outstanding figure in the newsprint industry, Joseph A. Bothwell, for several years president of Brompton Pulp and Paper Co., and more recently a director of St. Lawrence Corp., which now includes Brompton, died at East Angus on December 16.

Mr. Bothwell, who was 59 years of age, had been connected at various times with many other paper and lumber companies in Canada and the United States. He was president of Brompton Pulp and Paper Co. until the formation, in the spring of 1930, of St. Lawrence Corp., which absorbed Brompton, St. Lawrence Paper and Lake St. John Paper. He had not been in the best of health for the past two years and last summer underwent a serious operation in Montreal. He is survived by his widow and one daughter, Mrs. Douglas Hyndman of Three-Rivers.

The funeral took place in Plymouth United Church, Sherbrooke and was attended by many prominent members of the Canadian paper industry.

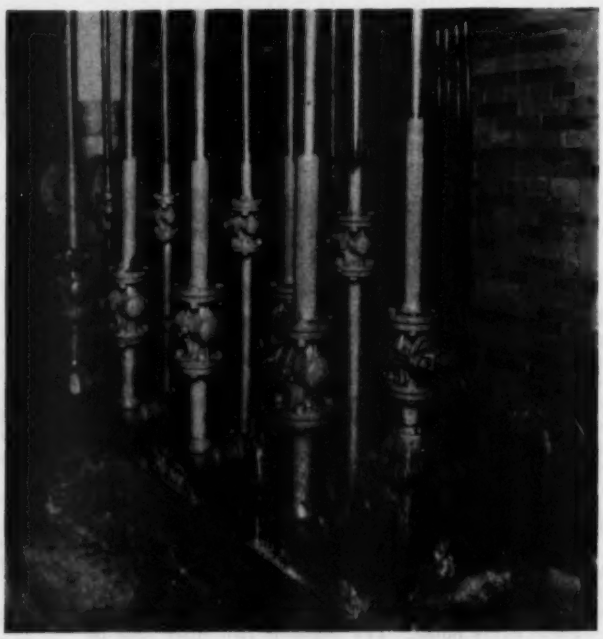
A bereavement that touched the hearts of pulp and paper men occurred last month in the death of Mrs. Crabtree, the mother of a family of papermakers—Harold, managing director of Howard Smith Paper Mills; Kay, manager of the Crabtree Divison of the same company; David, formerly manager of the Beauharnois Division of Howard Smith Paper Mills; and Edwin, representative of the Kraft Department of the Bathurst Co.

Settlers in the Abitibi district, in Northwestern Quebec, find that the market is choked, as a result of which they are facing real distress this winter. As a means of helping the farmers and settlers of this district, Hector Authier, M. L. A., has appealed on their behalf for at least a temporary reduction in freight rates.

Announcement was made last month of the placing of a number of important orders with the Dominion Engineering Works, the total amounting to a substantial sum. From the West Kootenay Power Co., Dominion Engineering received an order for three 19,000-hp. turbines for the Coralinn Falls

Cut-away view of Nordstrom Valve showing details of "Sealdport" method of lubrication.

These Valves Resist Leaks after long service Because *Lubricated*



Group of 1" and 2" Nordstrom Valves on lines leading from Caustic Liquor Pumps in Paper Mill.

Will your valves be free from leakage after they have been operated hundreds of times? You will probably answer "No", if they are the ordinary type of valve offered to the Paper Industry in the past. You will undoubtedly answer "Yes", if they are Nordstrom Valves.

Nordstrom Valves, because they embody a patented hydraulic lubricating principle, are tight from the outset and do not develop leakage, whether operated once or a thousand times. Uniform distribution of lubricant is assured, an advantage from the standpoint of lubricating as well as sealing the valve against leaks and protecting the metal surfaces.

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Agencies:

Denver - Republic Supply Company, 314 Continental Oil Bldg.
Honolulu - W. A. Ramsay Co., Ltd., Fort & Queen Streets
Manila - E. W. Emery & Co., J. A. Murphy Co. Peru Sociedad Ltda.
Philadelphia - Power, Wilson & Company, 1600 Arch St.
Saginaw - Arthur C. Beckert, 112 Durand St.
Salt Lake City - National Equipment Co., 101 West 2nd South St.
Tulsa - B.V. Emery & Company, 216 E. Brady Street

Factories in U. S. Oakland, Calif. and Belleville, N. J.
Canada - Prescott Bros., Ltd., Montreal, Toronto, Winnipeg, Vancouver. (Also Sydney, N.S.)
England - Audley Engineering Co., Ltd., Newport, Monmouthshire.
Buenos Aires, Argentine, - General Electric, Inc. Assn., Victoria 618 Esq. Peru.

NORDSTROM VALVES

The Perfect Application of a Principle

development. An order was received from Gatineau Power for one 34,000-hp. turbine for Paugan Falls; while from the Shawinigan Water and Power Co. there was received an order for four 38,000-hp. turbines to be used at the Rapide Blanc development.

The St. Lawrence Division of St. Lawrence Corp., at Three-Rivers, shut down its plant on December 19. Work will be resumed on January 5. The previous years the plant was closed down at the same time of the year, but only for eight days.

Donnacona Paper Co.'s operations for 1930, it is reported, will show a small deficit, as compared with profits in 1929 of $2,904 and in 1928 of $62,371. In 1929 earnings were $829,-861. The sum of $201,957 was set aside for depreciation and depletion, and bond and debenture interest totalled $625,000. The company is owned and operated by Price Bros. & Co.

The Taschereau cabinet has been considering the question of the development of the Carillon power site on the Ottawa river where some 400,000 hp. can be generated; and it is almost certain that legislation will be brought down in this connection at the forthcoming session of the legislature. It is understood that both the Shawinigan Water and Power Co. and the International Paper Co. have approached the Government with a view to obtaining the right to develop the site.

Horace Freeman, formerly at Shawinigan Falls, is now Research Engineer with the Canada Power and Paper Corp., at Three-Rivers. Mr. Freeman, after long and persistent research work, developed a satisfactory method and plant for the combustion of pyrites, utilizing the heat of combustion and cooling and cleansing the gas for absorption. A unit has been installed at the St. Maurice Division of Canada Power and Paper, and is giving satisfactory service.

ONTARIO

Fort Frances Company Wins Famous Lawsuit

Reversing a judgment of the Ontario courts, the Judicial Committee of the Privy Council last month allowed the appeal of the Fort Frances Pulp and Paper Co. from a decision of the Ontario Supreme Court in favor of the Spanish River Pulp and Paper Co. and other newsprint producers.

The dispute, which involves a very large sum, is an aftermath of the wartime price control of newsprint in Canada, when Canadian newsprint producers were ordered to supply a certain quantity of their output to Canadian publishers at a price fixed by the Newsprint Controller. In order to save transportation charges, Fort Frances supplied most of the Western Canadian newspapers, which took more than its quota of newsprint, thus enabling the eastern producers to send a larger proportion of their output to the more profitable United States market. The understanding was that the other companies would pay Fort Frances the difference between the fixed price and the open market price on the excess supplied to Canadian publishers by Fort Frances over the quota fixed by the Controller. The Privy Council judgment now orders the Spanish River and other companies to pay the differential to the Fort Frances Pulp and Paper Co. The amount involved runs into hundreds of thousands of dollars.

Ontario Papermakers Discuss Safety

At a recent meeting of the central group of the Ontario Paper Makers' Safety Association, safety matters and the cost of accidents in the pulp and paper mills of Ontario were discussed. T. Norman Dean, of the statistical department of the Workmen's Compensation Board, gave an interesting address and a lively discussion was led by A. P. Costigan, secretary-engineer of the association. It was stated that through a closer supervision and checking up process on the part of the mill management by a committee organized within the plant, the high cost of accident prevention and compensation could be considerably reduced.

In the general debate on the whole problem of accident prevention, mills were enjoined, while not forgetting the humanitarian aspect, to see that employees did not receive more compensation than they were entitled to. While stressing the advisability of having re-examination of accident cases, the meeting agreed that there was no idea of cutting down the man's allowance. It was pointed out that a closer and more general analysis of the statistics sent out by the association would be of great benefit to the mills. The relationship between the medical profession and the industries was also discussed. It was agreed that, while the members of the profession as a whole were honest, there were some who charged all the tariff would stand in handling compensation cases; and it was believed that by examining medical costs the total costs could be materially reduced.

W. C. Miller, chief sanitary inspector for Ontario, gave the meeting some interesting facts concerning the work of accident prevention in pulpwood and lumber camps, the cost of which had increased 20 per cent during the past year. It was stated by Mr. Miller than an effort is now being made to get the pulp and paper companies operating pulpwood camps to train one or more of their clerks in first aid work in order that cases might be properly looked after in the camps some of which were 80 miles from rail head.

Many millions of feet of pulpwood and timber will be cut next spring on a 14-square-mile area back of the proposed Montreal river dam to allow for the water which will pile up back of the dam. Since the agreement was reached by the Algoma Power Co. and the Hydro-Electric Power Commission several weeks ago as to the power right on the Montreal river, survey parties have been sent by the power company to prepare estimates on the cost of damming the Montreal river. As a result of the damming of the river, water will be piled back of the dam, covering 14 square miles of practically virgin timber.

Abitibi Earns Preferred Dividends

According to latest advices Abitibi Power and Paper Co. has earned its preferred dividends during the last year. When everything is taken into consideration, the record of the company during the last few months has been quite good. For the first ten months of 1930 there was a drop of only six per cent in production as compared with the previous year, the loss having occurred mainly during the latter part of the period in question. This has naturally cut down the net profits to a considerable extent; but reports seem to agree that the company should show its preferred dividend as well earned, that is, six per cent, with a surplus available on the common, which indicates a substantial margin over the requirements of the $50,000,000 of first mortgage bonds outstanding.

Though the newsprint mill of the Sault Ste. Marie Division of Abitibi has been closed down, throwing some 250 men out of work, the board mill of the plant is still running, employing 43 men on different shifts. The sheet machine is also running, employing 15 men, and the office staff has been retained. The City of Sault Ste. Marie has appointed a committee, headed by Mayor J. McLarty, to investigate the company's books in an endeavor to find out if it is keeping faith with the city in regard to an agreement it assumed in taking over the obligations of its predecessors that a given number of men would be continuously employed; and the mayor recently stated that the city is entitled to school taxes from the company for the years 1928, 1929 and 1930.

Hon. William Finlayson, Minister of Lands and Forests for Ontario, in an interview last month said that he had assurance that Abitibi did not propose to abandon any of the Spanish river mills operation, and that the present concentration of operations in lower cost mills on account of the present market situation, was only temporary. No essential machinery or equipment is being moved from the mills at Sault Ste. Marie or other points where the company has temporarily closed down some of its newsprint mills. The president of

What has happened to make hoods so popular?

Albermarle Chesapeake Co. Inc.

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The noticeable trend toward hooding machines is to a large extent the result of economies and advantages now obtainable through the exclusive features of

ROSS PAPER MACHINE HOODS

Transite-Asbestos lumber and Structural Steel construction.

Entire hood free from danger of fire and damage from moisture and acid.

Panels and Curtains built complete—shipped ready for assembling.

Low erection and upkeep cost.

No interference with the normal operation of machine.

All panels designed to permit quick removal if necessary.

Opportunity to reassemble panels—one or more—as desired.

Hooked or hinged curtains for quick access to dryers and rolls.

With all the advantages and none of the disadvantages of hoods previously available, the Ross Removable Panel Hood presents an entirely new and greater measure of economy, efficiency and durability. Its exclusive construction features permits complete erection over a week-end shutdown. Available either insulated or uninsulated to suit climatic conditions. The steady and rapid increase in the number of installations testifies to the recognition of its superior advantages.

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ROSS SYSTEMS
HEATING—VENTILATING—DRYING

Abitibi informed Mr. Finlayson that already large sums have been spent in rehabilitating the Spanish river properties, and this program would be resumed as soon as the present depression had passed.

Work on the 275,000-hp. hydroelectric development at Abitibi Canyon is going forward according to schedule. Already contracts are being drawn up for equipment and machinery to be installed next year when the big dam is completed. Thus far all contracts have gone to Canadian firms. The contract for five 60,000-hp. water wheels for the new developments were recently awarded to the Allis-Chalmers Co,. of Toronto, and the Dominion Bridge Co., of Montreal, will make the five penstocks. Tenders on five 55,000-kv.-a. generators have been called for in New York by George F. Hardy, consulting engineer for the development, and it is understood that all the Canadian manufacturers who make the type of generators required have submitted estimates.

R. T. Steedman, who has been sulphite superintendent at the Iroquois Falls Division of Abitibi Power and Paper Co. for a number of years, has been promoted to be assistant manager of the Smooth Rock Fibre Division of the company, at Smooth Rock Falls. J. S. Brown, who was assistant sulphite superintendent at Iroquois Falls, has been promoted to take Mr. Steedman's place at that mill.

At the Port Arthur Division of Provincial Paper Ltd., a subsidiary of Abitibi Power and Paper Co., the newer machine last month recorded on two successive days its highest runs since it has been in operation. On the first of these days it made over 165,000 lb., and on the next day over 166,000 lb.

This winter the Ontario Forestry Branch is erecting 25 new steel observation towers and establishing several additional short-wave radio wireless stations with a view to reducing still further the annual bush fire threat. Ten towers are being distributed equally between the Kenora and Thunder Bay forest districts, three each in the Oba and North Bay districts, and one in each of the Trent, Algonquin Park, Sault Ste. Marie, Georgian Bay and Cochrane districts. All the towers are being located at strategic points and will be linked up by phones with the nearest forestry headquarters.

At a meeting of the directors of Howard Smith Paper Mills, Ltd., held on December 29, C. Howard Smith relinquished the presidency of the company due to ill health and was elected chairman of the board. Harold Crabtree, who has been associated with Howard Smith Paper Mills for the past 14 years, was elected president, and E. H. Smith, vice-president and managing director. In addition, E. K. Robinson and George W. Pauline were appointed vice-presidents.

Record Year for Nashua Company

By strenuous sales efforts and expert factory production, Canadian Nashua Paper Co., manufacturers of waxed papers and similar lines, at Peterborough, has wound up the year with the most successful 12 months in its history. According to John R. Marshall, general manager, in 1929 the plant increased its business more than 70 per cent over the previous year. In 1930 the 1929-mark was bettered by 15 per cent or more.

Mr. Marshall stated that the company and employees were going ahead planning and building for bigger business this year, feeling confident that they would find it. South Africa and Mexico will be placed on the firm's export list in 1931 in search for wider markets. In 1930 Nashua products were shipped from Peterborough to New Zealand, Australia and the British West Indies. In Canada, the business extends from coast to coast. The company has carried its maximum number of employees throughout the whole year. Moreover, the capacity of the plant had been increased in 1929; machine for machine was duplicated almost throughout the entire plant, and plans for further additions to machinery are now being advanced. "This machinery had to be kept going," said Mr. Marshall, "and the sales staff went out and secured the business. As to the outlook for 1931, much depends on tariff changes at the next session of Parliament. Business will go ahead with a fresh impetus when a definite Government policy is announced."

❖ BRITISH COLUMBIA ❖

Commencement of work on the $250,000 insulation board plant of the Sidney Roofing and Paper Co., Vancouver, has been delayed for a short time. The company is anxious to have the very latest ideas embodied in the plant, and it is largely because of this determination the project has been held up. Under the original plans of the company, work was to have been started this fall. The order for machinery has been placed in the East, and by the time this is delivered the building will be ready for its reception. The site has been prepared so that there will be no delay in the completion of the building once the contract has been placed. According to R. W. Mayhew, managing director of the company, tenders for the work will be called for as soon as the plans have been prepared and approved.

Powell River Starts Up Seventh Machine

Trial runs were made on the Powell River Co.'s seventh machine last month, and it is now in regular operation. The machine brings the capacity of the mill up to 650 tons per day. A considerable number of men are being added to the permanent operating staff of the company as a result of the coming into production of the new machine. A number of the new operators were formerly engaged in construction and have now been transferred to the operating end.

Good progress is being made on the company's power development. Water is now dropping over the spillway of the Lois river dam, but power will not be used from that source until the season is further advanced, as several engineering details in connection with the $8,000,000 expansion scheme have yet to be completed. The 5,800-foot tunnel between Lois river and Stillwater has been drilled, and it is now being lined with cement. The steel penstocks surge tank and power house are well under way, and the transmission lines have been ready for sometime to convey the energy from the Stillwater power plant to Powell river, where all the papermaking units are grouped.

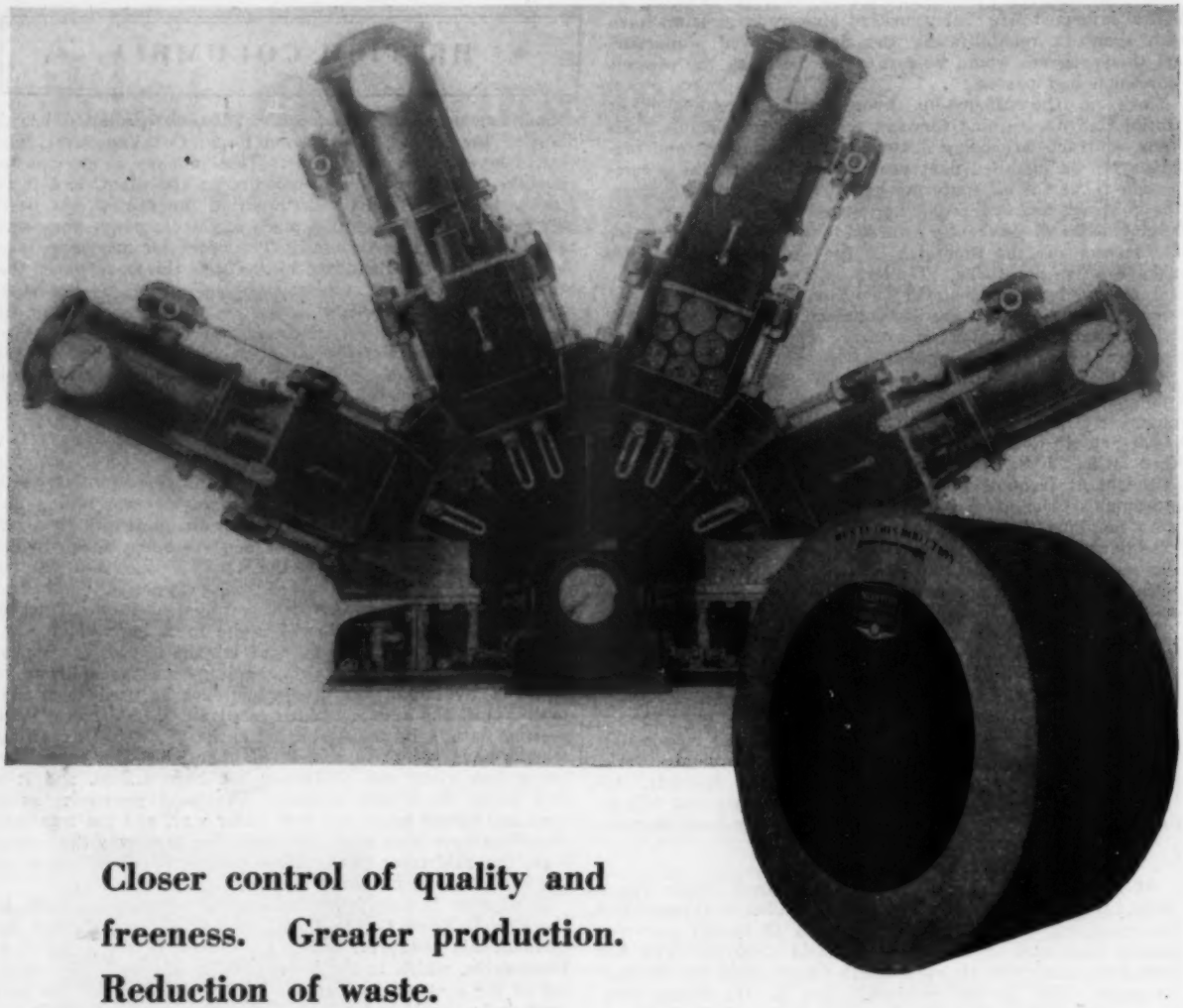
Newsprint is now being shipped at regular intervals by the Powell River Co. to Lima, capital of the Peruvian Republic. This newsprint is being absorbed in the press of **El Commercio**, which is the leading daily of Peru. The securing of the contract for supplying the newsprint for this publication is considered a very important development in the history of the Powell River Co. The paper is shipped direct from Powell river to Callao, the chief seaport of Peru, whence it is shipped by rail to Lima.

The Powell River Co. recently donated $5,000 to the Million Day Work Campaign in Vancouver. In making the donation, A. E. McMaster, general manager of the company, said his firm was carrying on its pay-roll at the present time a force of 200 men over and above normal requirements. He also added that it was the intention of the company to retain these men in steady employment.

❖ NOVA SCOTIA ❖

Owing to lack of water in the Mersey river, the Mersey Paper Co. was forced to work for a time on a 70 per cent production basis. Recent rains, however, have remedied this condition, and the mill is once more back to capacity production. Reports say that the **New York Herald-Tribune** has increased the amount of newsprint which it is purchasing from the Mersey mill.

The Supreme Court of Nova Scotia has rendered judgment in favor of the Minas Basin Pulp Co., owning and operating a mill at Hantsport, which had sued A. E. Regan, of Wolfville. The plaintiff company claimed the defendant had subscribed to a certain number of shares of stock, totalling $1,000, but had refused to accept these shares when they were delivered to him.



Closer control of quality and freeness. Greater production. Reduction of waste. In all types of modern grinders— NORTON PULPSTONE.

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Worcester, Mass.

Canadian trade supplied from Canadian plant.

Grinding Wheels
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Refractories - Floor
and Stair Tiles

❖ NORTHERN NEW YORK ❖

The proposal of creditors to accept ten per cent on their claims against the Unity Paper Mills, Inc., of Potsdam, which has been in the hands of receivers for the past six months, has been approved by Federal Judge Frederick H. Bryant of Malone. The claims amount to about $118,000. Bernard Wade, of Potsdam, and Hollis Martin, of Norwood, the receivers, have been directed to prepare an accounting of the assets of the company. The Unity Mill has continued operations and it is expected a reorganization plan will be adopted in the near future. A settlement has been reached in the matter of first and second bond issues of the company, it was said.

Northern New York logging camps will open this month. The camps of the Gould Paper Co. of Lyons Falls have been already opened, according to Harry P. Gould, head of the Gould Paper Co. At North Lake, 70 miles from Lyons Falls, the company felled about 30,000 cords of spruce pulpwood last year and 200 woodsmen will move the wood to the skidways this winter under the supervision of John B. Todd, woods superintendent of the company.

Harry S. Powell of Watertown has purchased of the International Paper Co. a railroad siding and 15 acres of land at the No. 4 mill of the International at Glen Park. The three mills of the International at Glen Park have been abandoned for several years. Mr. Powell plans to establish gasoline storage tanks at Glen Park.

Northern New York paper mill men are interested in the plight of French-Canadian homesteaders in the Abitibi districts of northwest Quebec who face starvation during the winter because of the lack of a market for their pulpwood. Large quantities of the pulpwood produced in the Abitibi districts were formerly shipped to Northern New York but now the Canadian product has been displaced by Russian pulpwood. A request to the Dominion board of railway commissioners to reduce the freight rate on pulpwood from the loading point at Amos, Quebec, to Watertown to not more than $9 a cord has been refused.

Ask Tariff on European Sulphite

Frank A. Augsbury, head of the Algonquin Paper Corp. of Ogdensburg, in a recent statement urged that the United States put a tariff on European sulphite. On account of lower cost of production abroad, Swedish manufacturers are able to undersell the American manufacturers, who are facing eventual suspension if congress does not provide a remedy, Mr. Augsbury stated. The Algonquin sulphite mill is being operated at only 50 per cent of capacity owing to the Scandinavian competition, he said. In contrasting wage scales Mr. Augsbury said cookers abroad were paid 25 cents an hour compared with 95 cents here. In Scandinavia the best mill superintendents can be hired at $2,000 a year while their salary in America is around $6,000. Common labor in the Ogdensburg mill is paid four to five times more than in Finland, Sweden and Norway. Canadian sulphite mills are suffering from the same kind of competition, Mr. Augsbury said. American producers desire a tariff equal to the difference between the European and United States wage scales, he said. "All we ask is a chance to compete on an even basis. If we don't get it the results are inevitable and northern New York communities like ours will be severely affected, he declared.

Planting of 50,000 Norway spruce trees at Altmar, Oswego county, in the Salmon river region marks the start of a reforestation program by Niagara-Hudson Power Corp. that will include eventually 5,000,000 trees, the Power Corporation has announced. Most of the reforestation in northern New York will be done under the direction of J. E. Kieb, chief forester. Protection and equalization of the water supply for

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Houghton's Absorbed Oils were developed especially to meet the demands of modern machinery. A special film base prevents metal-to-metal contact in the bearings. Into this base is absorbed a lubricity oil which allows the transmission of power with minimum frictional loss within the oil itself.

Houghton's Absorbed Oils "stay put" in bearings operating under the heaviest loads and at the highest speeds.

A 50% reduction in the cost of oiling labor is by no means uncommon when Houghton's Absorbed Oils are in use.

Bearing life is safeguarded by the use of Houghton's Absorbed Oils. Longer machine life and increased production results.

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And All Over the World

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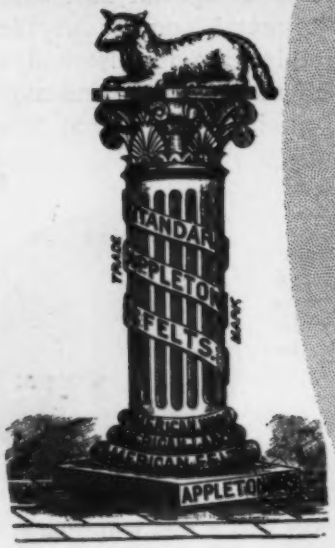


+ + + today the standard for quality and service in felts and jackets.

This enviable position has been attained by Appleton Felts and Jackets because their development has kept abreast of progress in paper manufacturing. Appleton Felts and Jackets are designed with technical foresight as quality products and made as definitely uniform as a plant control of every operation through which they must pass during their manufacture can make them—to meet the individual requirements of the customer.

As 1931 begins, entrust your felt problems with us.

APPLETON WOOLEN MILLS-APPLETON, WIS.

power purposes is the principal motive of the company but it also seeks to stimulate public and private interest in reforestation.

Richard Gray, erector for the Bagley & Sewall Co. of Watertown, who returned to Watertown two months ago after spending a year and a half in Russia setting up papermaking machines for the Soviet government, expects to return to Russia this month to complete his work. Mr. Gray will set up another machine at Balakhma on the Volga river. This machine was made by Bagley & Sewall and the last carload of parts was recently shipped to Russia. Jack Amey, paper mill superintendent, who also went to Russia for the Watertown firm returned to the United States in December.

Francis M. Hugo

Francis M. Hugo, formerly of Watertown, N. Y., passed away at his home in New York City, on Tuesday, December 30, 1930, in his sixty-first year.

Mr. Hugo was originally a papermaker, having been general manager of the old Remington-Martin Paper Company, and was secretary of the reorganized Remington Paper and Power Company. At the general election for State officers throughout New York State on November 3, 1914, he was chosen Secretary of State by a surprisingly large plurality.

Mr. Hugo was born in Kingston, Ont., on March 5, 1870. He spent his boyhood in his native city where he was educated for Queens University from which he was graduated with two degrees. He then moved to Watertown, N. Y., where he entered upon a political career. Mr. Hugo served four terms as Mayor of Watertown and became a dominant figure in Republican politics throughout northern New York.

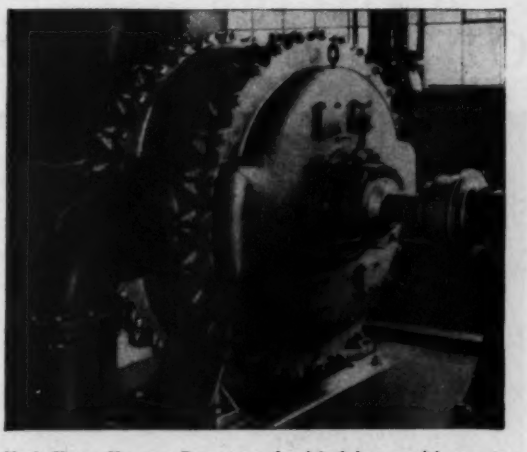
After serving three terms as Secretary of State he came to New York to become vice-president of the National Surety Company, at the same time keeping up his law practice. More recently he had his chief interests in real estate. He was president of the Francis Real Estate Corporation, the Florence Realty Corporation, Hugo, Levy & Roe, Inc., an insurance firm, and of the Goodale Real Estate Corporation. Mrs. Hugo, the former Florence Goodale, of Watertown, and their son Francis M. Hugo, Jr., are the only survivors.

The Harmon Paper Co. of Brownville was granted a federal tax refund of $14,261 during the past year, according to a list of tax refunds sent to Congress Dec. 29, by Secretary of the Treasury Andrew W. Mellon. The Aldrich Paper Co. of Natural Dam received a refund of $2,544.

Robert B. Dixon, 67, former superintendent of paper mills in Northern New York and Canada, died Saturday, Dec. 20, at the home of his son, Albert C. Dixon, at Crane, Texas, where he had intended to spend the winter. A native of Wolfe Island, Ont., Mr. Dixon entered the papermaking business in the International Paper Co. mill at Piercefield, N. Y. He served as night superintendent in the mills at Piercefield and Pyrites. Later he went to Canada where for about 20 years he was employed in mills at Donnacona, Hull and Kenogami until about two years ago when he retired. The body was brought back to Northern New York and burial was made in Watertown.

A final adjudication has been made in the compensation claim of Martin Kelly of Ogdensburg, an employee of the Algonquin Paper Co. of Ogdensburg, against the Utica Mutual Insurance Co. in favor of the claimant. The total award was $4,337.28 for the permanent loss of 100 per cent of the claimant's left leg.

In order to improve its service in the Chicago area, the American Hoist & Derrick Co., with offices at 205 W. Wacker Drive, has purchased warehouse facilities which will enable it to carry complete stocks of new machines and repair parts for the prompt service of all users of American hoisting machinery.



Nash Hytor Vacuum Pumps are furnished in capacities up to and exceeding 5000 cu. ft. per min. of air at 20 in. vacuum.

STURDY . . . SIMPLE
. . . *RELIABLE*

THE Nash Hytor is a simple and dependable vacuum pump. It is built to give long service with a minimum of attention. The rotor, the only moving part, revolves without contact in the casing and so is not subject to wear. Pressure is the same on both sides of the rotor. Oversize ball bearings, rigidly mounted in heavy brackets, support the shaft at each end. Perfect and permanent alignment is assured.

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VACUUM PUMPS & COMPRESSORS

Biggs Builds Welded Digesters of Corrosion-Resisting Alloys

Welded Rotary Digester of Enduro KA2-S, built by Biggs. Plates ⅝" thick. Test, 225 pounds.

IT is logical that Biggs, after more than 40 years' service to the paper industries, should fabricate the first digester of Enduro metal. Biggs is now prepared to weld cooking and bleaching equipment of Enduro and other non-corroding alloys.

In such matters, Biggs always makes haste slowly. The necessary period of research has been completed. As a consequence, the statement will receive the same full credence as has been accorded similar announcements by Biggs. All this illustrates Biggs' policy of perfecting facilities for producing those types of equipment for which the paper industry finds a permanent place in its construction and rehabilitation programs.

Biggs electrically welded vessels have virtually eliminated maintenance problems. In particular, they have ended the difficulties formerly met in the chestnut chip and other special processes. Now, fabricated of such alloys as Enduro KA2-S, they reduce deterioration to a vanishing point, and their productive life is almost everlasting.

Biggs welded high pressure vessels are built under a procedure control recognized and accepted by the leading insurance companies. They are accepted for installation in sizes beyond the restrictions of the A.S.M.E. unfired pressure vessel code.

THE BIGGS BOILER WORKS COMPANY, AKRON, OHIO
New York Detroit

Biggs Welded Rotary Digester

Biggs Riveted Rotary Digesters

Biggs Standard Cylinder Rotary Bleaching Boilers

Biggs Tumbling Digester

Penstocks, Pipe Lines, etc.

"Built by Biggs"

Welded Globe Rotary Digesters
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Cylinder Rotary Bleaching Boilers
Tumbling Digesters, Welded or Riveted
Sulphate and Sulphite Digesters
Penstocks
Welded or Riveted Steel Plate Construction of Every Description

BIGGS **ROTARIES** *for years of dependable cooking and bleaching..*

The Biggs BOILER WORKS CO. AKRON OHIO

NEW YORK CITY

No Change in Newsprint Price

The International Paper Company is circularizing its customers with an official statement that it will make no change in the price of newsprint for 1931. The price during the coming year will be the same as that established at the close of 1929, which is $62 per ton delivered in New York or Chicago.

"After considering the situation carefully and trying to view it both from your standpoint and ours," the company's letter states, "we have concluded that there should be no change in our price of newsprint for the coming year.

"In reaching this conclusion, the company believes it is following a consistent policy in that a year ago we vigorously opposed any price increase. Today we feel that any decrease in price is unjustified and that it would be detrimental to the interest of publishers as well as paper manufacturers."

Association in New Offices

The American Paper and Pulp Association is now comfortably housed in its new offices in the new building at 370 Lexington avenue, at the corner of East Forty-first street, New York, where it moved on December 27 from the former quarters at 18 East Forty-first street. The new offices comprise about half of the eighth floor, are especially well lighted and afford more room for the Association officials and employees.

In its new quarters, the Association plans to conduct a permanent exhibit for the purpose of putting on display new products developed by members of the American Paper and Pulp Association, and where buyers can come and see all that is new and best in paper and paper products. General Manager Jesse H. Neal is engaged in working out the details of the exhibit, which he believes will prove quite a boon to the Association members as well as to the industry as a whole.

Paper Stock Dealers Elect

Andy C. Costarino, of the Hicks-Costarino Company, Inc., Brooklyn, N. Y., was elected president for the ensuing year of the New York Association of Dealers in Paper Mills' Supplies, Inc., at the annual meeting of that organization, on the evening of December 11. Mr. Costarino, who has been vice-president of the association for the last two years, succeeds Bert Lorenz, of D. Benedetto, Inc., New York, who stepped down from the presidency after serving two terms as chief executive of the group of New York City paper stock packers and merchants. Harris Goldman, manager of the New York office of the Leshner Corporation, was elected vice-president; Walter H. Martens, of George W. Millar & Co., Inc., was re-elected treasurer, and Alfred J. Moran, of A. J. Moran & Co., Inc., was again chosen secretary.

The annual banquet of the association will be given on the evening of February 17 in the Commodore Hotel during the week the American Paper and Pulp Association holds its yearly convention in New York.

I. P. Declares Dividends

Directors of the International Paper and Power Company declared regular quarterly dividends of 1¾ and 1½ per cent respectively on the 7 and 6 per cent preferred stocks on December 10, payable on January 15 to stock of record of December 26.

"The October figures and the preliminary figures for November," the company reports, "show earnings exceeding the monthly preferred stock dividend accrual, and indications are that earnings for the current quarter will exceed the preferred stock requirements for the quarter. The substantial increase, while partly seasonal, is due also to increased income from the company's Canadian power

Do you know how MORSE *stops Power Transmission Waste?*

A Morse Drive On Short Centers

TODAY'S strenuous competition demands the elimination of waste. Morse *Rocker Joint* Silent Chain Drives stop power transmission waste in almost every industry. The following is only one of many reports we have received telling of savings made.

"Six Morse Silent Chains have been driving our paper beaters for the past eleven years. In that length of time we have not found it necessary to make any sort of replacements, the only maintenance cost having been oil, and this has amounted to so little that our maintenance cost has been so low as to be practically negligible.

"Our six Morse Chains running on 40 H. P. motors have been in operation 24 hours a day, 6 days a week, for the entire eleven years and still are giving excellent service. They have more than paid for themselves many times over, and as far as we are concerned there is no other type of drive as well suited to the purpose for which we use them. We can only speak in the highest terms of them."

Why not let us show you the advantages which you may gain by using Morse?

MORSE CHAIN CO., ITHACA, N. Y.

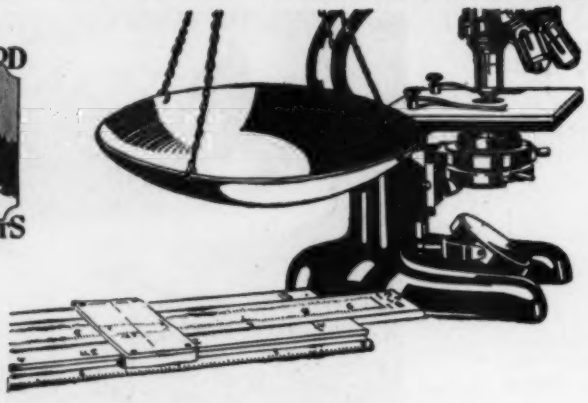
Manufacturers of Morse Silent Chain Drives, Flexible Couplings and Chain Speed Reducers.

BRANCHES IN PRINCIPAL CITIES

Visit the Morse Chain Co. exhibit, Booth B-102, American Road Builders Association National Convention, St. Louis, January 10th-16th.

FINE PAPERS REQUIRE THE SPECIAL QUALITIES PROGRESSIVE SCIENTIFIC DEVELOPMENT HAS PUT INTO KENWOOD FELTS

KENWOOD WOOL PRODUCTS



Their enduring smooth surface gives a superior finish. This means QUALITY.

Their greater openness provides dependable filtration at higher speeds. This means INCREASED PRODUCTION.

Their greater strength increases their length of life. This means LESS COST PER TON.

These combined qualities are of especial value to the Fine Paper Mill whose aim is QUALITY paper ECONOMICALLY produced.

F. C. HUYCK & SONS

KENWOOD MILLS, ALBANY, N. Y.

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KENWOOD FELTS

properties, reduction in administration expenses and increased efficiency of its paper mill operation."

Boxboard Manufacturers Criticized

Manufacturers of paper boxboard are contributing toward the disorganization of their own industry by disregarding production costs in establishing prices, E. Victor Donaldson, vice-president and general manager of the Robert Gair Company, one of the largest producers of boxboard and paper boxes with headquarters in New York City, charges in a statement made public a few days ago. A desire to reestablish a correlation between price and cost of production, Mr. Donaldson adds, was responsible for the recent advances made by the Gair Company in its prices of board.

"Production costs have played only a minor part in determining the prices at which boxboard has been sold in the last year," says Mr. Donaldson's statment. "The sales made at figures below actual production costs can be estimated conservatively at thousands of tons. Price lists have not been announced and the selling side of the business has been conducted pretty much along 'whispering campaign' lines.

"Raw materials as well as finished products have been marketed below production costs, and this has added to the difficulties of those in the business. It is obvious that no industry can long survive with its foundations resting on such quicksands. The condition is not a healthy one for the manufacturer of boxboard or for the package manufacturer or consumer."

The Saranac Pulp and Paper Company, of Port Chester, N. Y., has filed notice of an increase in capitalization from 35,000 to 130,000 shares, of which 10,000 are preferred of $100 each, and 120,000 are common no par shares.

A new paper merchandising concern under his own name has been started by Gustave C. Indruk, for more than 30 years connected with D. S. Walton & Company, paper merchants of New York. Mr. Indruk's warehouse and temporary office are at 50 Lispenard street, New York. He will handle a general line of paper.

Stephen A. Powell & Company, of 20 Waverly place, New York, one of the metropolitan district's well-known paper jobbing firms, has been incorporated under New York State laws with a capitalization of $250,000 and henceforth will be known as Stephen A. Powell & Company, Inc.

The Equitable Paper Bag Company, Inc., of Brooklyn, N. Y., has increased its capital from $50,000 to $200,000 to provide for contemplated expansion.

The Colonial Paper Company, of Brooklyn, N. Y., has been organized and incorporated under New York State laws to deal in paper and paper products with a capital of $25,000. Jacob L. Diamond and Joseph Byrne, of 551 Fifth avenue, New York, were the incorporators.

Twelve Chemipulp Systems Operating

Seven Chemipulp systems representing a yearly production of approximately 200,000 tons of sulphite pulp, were installed during the year 1930 according to information recently received from A. D. Merrill of Chemipulp Process, Inc., Watertown, N. Y. In all, there are now twelve systems in operation in mills producing about 300,000 tons of sulphite pulp annually. These systems are distributed in mills from the Atlantic to the Pacific and are about evenly divided between the United States and Canada.

It should be remembered that the Chemipulp Process involves the recovery of gases and liquors from sulphite digesters without cooling and the corresponding utilization of the hot acid.

dependable valves for
every service
Improved design, exacting workmanship, and quality materials insure dependable valves under extreme working conditions. Powell Steel Valves are made in Globe, Angle, Check, and Gate patterns for working steam pressures from 150 to 1500 pounds.
THE WM. POWELL CO.
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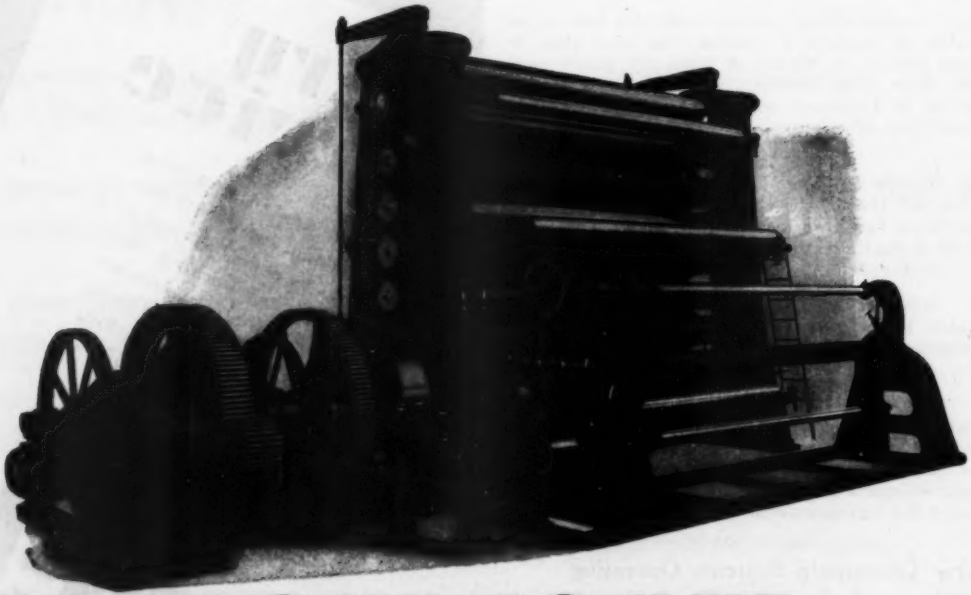
SUPER CALENDERS *and* Experience

Experience does not come over night,—not in the designing and building of Super Calenders. It is the result of long years of intimate study of the daily dozens of difficulties to be overcome in the Paper Industry. For 65 years the HOLYOKE MACHINE COMPANY has built Quality and Superior Performance into every HOLYOKE MACHINE. When planning purchases of equipment consult with HOLYOKE Engineers, Holyoke Machine Co., Holyoke, Mass.

Manufacturers of Super Calenders, Platers, Cotton and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.



The HOLYOKE MACHINE COMPANY

FOUNDED 1863

NEW ENGLAND

Output of New Mill Sold

It appears that the Maine Seaboard Paper Co., now in full operation at Bucksport, Me., after being completed in record breaking time, has sold its entire 250 tons per day output for a five-year period starting January 1, 1931. Paper will be shipped by boat or rail, preferably the latter, to all points along the coast. It is understood that the company has been seeking to lease or buy vessels from coastwise shipping companies for this service and has experienced some difficulty securing vessels of the number of decks desired to carry the maximum volume of paper. Vessel service will in any case play an important part in the receipt of raw materials as well as the delivery of paper.

The mill will undoubtedly be one of the lowest cost producers in the country. Its freight rate advantages on raw materials and finished products will be augmented by its power reserves consisting of the last word in combined oil and coal burning equipment, the fuel to be used being determined on the current relative cheapness. It is understood that the power plant will use oil at the start.

The First Quarter Outlook

The Paper and Pulp Committee of the New England Shippers Advisory Board, reporting to the board its survey of anticipated shipments during the January-March period, states that a feeling of pessimism exists as to the outlook. Two mills are hopeful of an improvement but the great majority fear marked declines compared to the first quarter of 1930.

Fine paper shipments including writings, ledgers, papeteries, envelopes and coated papers expect a 5-10 per cent drop. Papeterie and specialty paper shipments will be off 10-15 per cent and pulp importers expect a 10 per cent decrease in their volume, and other imported raw materials will be down compared to the first quarter of 1930 as much as 40 per cent. Newsprint alone is expected to run as heavy as last year.

The current improvements under way at the Taconnet mills of Hollingsworth & Whitney Co., Winslow, Me., will involve a total expenditure it is understood of nearly $1,000,000. Of this, some $600,000 is going into a new power plant in which two new 1,120 hp. Edgemore boilers and two Taylor powdered coal burners made by the American Engineering Co., will greatly enhance the capacity of the plant as well as its efficiency.

Agreement Between Power and Paper Co's

Another million dollar Maine transaction involving a paper company, was consummated with the Bangor Hydro Electric Company and the Advance Bag & Paper Co., of Howland, executive offices in Boston, as the participants. Under the agreement, the Advance Companies' dam, its 7,500 hp. development and all potential development there will be purchased by the Bangor company and will be sold with the understanding that the paper company will purchase its power requirements from the power company. This is similar to deals put through in other Maine cities.

Edward M. Graham, who is president of the Bangor Hydro Electric Co., is also president of the Eastern Manufacturing Co., papermakers of Bangor. Mr. Graham did not confirm rumors that the Howland power plant might be expanded considerably in the near future.

David J. Kelleher, vice-president of the H. P. Lambert Co., Boston shipping brokers, assured the I. C. C. hearing at Boston last month that low in transit storage rates granted in New York made it difficult to bring wood pulp through Boston. He stated that cargoes landed from incoming vessels are trucked to New York warehouses, and for a storage rate as low as 7c per ton are held for subsequent delivery to in-

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AGITATOR DRIVES

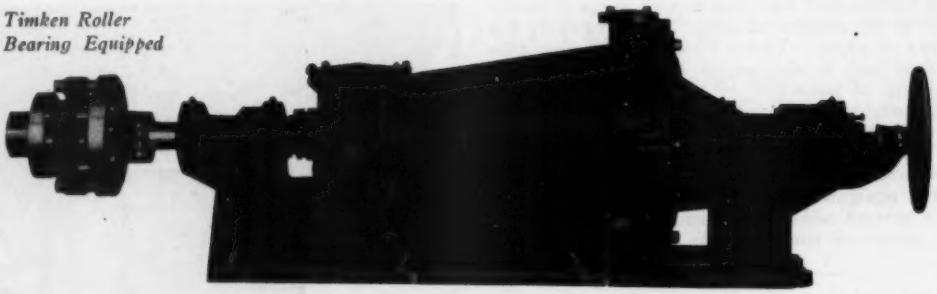
the new T-17

MODERN -- in every detail -- incorporating in its design the proven features of highest efficiency. Fully enclosed - Conseratively rated -- The new T-17 finds wide usage for many types of work. Send for special bulletin.

NEW ENGLAND
TANK & TOWER CO.
EVERETT, MASS. - 50 CHURCH ST., NEW YORK

The No. 4-Hercules

Timken Roller Bearing Equipped



OUR No. 4 Hercules Jordan measures up to the same high standard of quality workmanship and specific specifications as our famous No. 3 Hercules Jordan. Built with one piece base and shell—a type of construction that eliminates vibration as well as adds strength, rigidity and life to this Jordan's usefulness. Extra long sand traps require less frequent cleaning, and are quickly accessible from either side.

The No. 4 Hercules Jordan is Timken Tapered Roller Bearing Equipped, with bearings and housings permanently assembled upon the shaft. This well known exclusive Hercules Feature eliminates the necessity of disassembling the bearings when filling changes are required. Here is a feature that saves much time and labor and insures longer, continuous operation. These bearings insure a perfectly centered plug under all loads and even wear upon the filling knives with consequently longer life.

All Hercules Jordans equipped with various types of fillings according to specifications. We include Heat Treated Manganese Steel,—Bronze,—Stainless Iron,—and Strenes Iron Fillings. Plugs equipped with steel nose. There are a host of other vital facts you will want to learn about—wire or write for detailed specifications.

Canada
Waterous Ltd.
Brantford, Ontario

Pacific States
A. H. Cox & Co., Inc.
Seattle, Washington

THE HERMANN MANUFACTURING CO.
LANCASTER, OHIO

terior destinations. At Boston such scales range up to 22½c. per ton. Mr. Kelleher further assured the hearing that two wood pulp importer customers had given assurance that if rates would be lowered, a 100 per cent increase in the Boston movement would result.

The Maine Coal & Dock Co., which recently took over unloading facilities at Bucksport, Me., is now making deliveries through that port to Maine paper mills and is also operating a sulphur plant there for unloading cargo sulphur for Maine mills.

Boston Wool Trade Adopts Paper Twine

To the Fleece Twine Committee of the Boston Wool Trade Association goes credit for the adoption by a large number of American wool growers, of paper twine, a converted product made on a kraft paper base in place of jute, sisal or other fibers. The committee has been actively engaged in educating the growers to the importance of this change, for the slivers from the fiber twines have been an endless cause of loss to manufacturers as they become mixed with wool and do not take dyes often depreciating very heavily the value of many thousands of yards of otherwise first class woolen and worsted goods. The committee estimates that a 30 per cent increase in the use of paper twine occurred during 1930 over 1929 due to the 65,000 circulars distributed throughout the wool growing states, and an equal number of reprints from a Boston Wool Trade Association Bulletin likewise broadcast besides direct mail and word of mouth efforts in the same direction.

The paper industry, particularly the sorely beset kraft paper section has an opportunity for still further enlarging its market in the wool trade by the development of a paper wool bag, sufficiently reinforced and waterproofed, to contain wool. It is understood that several manufacturers are experimenting along this line at present. There are many obstacles to be overcome but the association is hopeful that such a container will be on the market within a few years.

Further use of paper twine in sewing the mouths of wool sacks is also a desired end for which the association will agitate, the use of paper twine so far having been largely confined to the tying up of fleeces. While a paper twine sufficiently strong for this purpose has been developed, one of enough tensile strength for sewing the sides of bags has yet to be found.

At least two, and possibly three Boston paper houses have placed their business on the net profit control basis. These are primarily white paper firms and the change while permanent should it satisfy the management of both firms, is still in somewhat of an experimental stage in Boston.

Von Olker Snell Paper Co., announces that Hubert W. Lockhart, for ten years a salesman for that firm, has become associated with Joseph D. Snell in the management of the business. He succeeds the late Perry B. Von Olker as president, Mr. Snell continuing as treasurer.

Baxter Paper Box Co., Brunswick, Me., manufacturers of a varied line of paper boxes chiefly for textile uses, is to be sold in the near future and the plant now idle will shortly be operating.

Penobscot Chemical Fibre Co. report that after several months experience with their new Chemipulp process in the mill at Great Works, Me., they are satisfied that the system has provided a greater measure of control over uniformity. The company manufactures both soda and sulphite pulp for the market.

The suction apparatus which has been in use at the China Clay pier, No. 48 of the Mystic Terminal Co., Boston, has finally been found less efficient than the Blair-Knox metal hoppers working in combination with ship's boom and elec-

RYERSON

IMMEDIATE STEEL FOR MAINTENANCE AND REPAIR

When something breaks . . . and steel is needed in a hurry . . . you can depend upon Ryerson for quick action. Complete stocks of all steel products, including:

Bars	Wire	Babbitt Metal
Shapes	Chain	Tool Steel
Structurals	Turnbuckles	Bar Iron
Rails	Shafting	Refined Iron
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Sheets	Boiler Fittings	Safety Treads
Rivets	Corrugated Sheets	Small Tools
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Nails	Welding Rods	

Write for the Journal and Stock List — the "key" to Immediate Steel.

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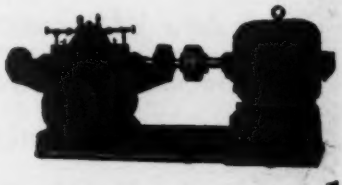
LAWRENCE "VORTEX" CENTRIFUGAL PUMPS



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tric trucks. For over two years the Terminal Co., which is owned by the Boston & Maine R. R., has endeavored to give this direct "hold to car" unloading device a thorough trial but the nature of china clay made it less efficient than with other materials. The Boston system is similar to that which will be used at the new Portland Terminal Company's clay pier. Diggers operated by ship's boom drops the clay from the hold into metal hoppers on the pier edge, which empty into electric trucks hand operated loading into cars, involving practically no trimming. At Portland, the new system awaits completion of the pier shed.

The New England paper stock trade received a pleasing surprise about Christmas time in the form of another ten per cent dividend on the old claims against the Inland Paper Board Co., the New England mill of the Shortess interests, located at Versailles, Conn. This makes a total of 30 per cent paid off on old claims and the company is paying all current bills promptly. The fact that it operated profitably in 1930 is considered a good omen for eventual payment of all the old debts.

Traffic Items

The New England Freight Association took the unusual action of voting down the proposal of a member carrier, in the case of the Maine Central R. R.'s proposal to cancel commodity rates on wood pulp from Grand Trunk piers at Portland to paper mills on M. C. rails. The proposal was vigorously assailed by mills and importers at a Boston hearing in November. It was inspired by the Maine Central's desire to force business to its new and greatly expanded Port Terminal Co. piers specially equipped for handling wood pulp, but would impose a great hardship on Maine mills because the Central's piers are considered inadequate even though enlarged, and much pulp would of necessity have continued moving to Grand Trunk wharves at a material increased expense to Maine mills. The Maine Central has appealed the matter to the Executive Committee of the New England railroads.

The hearing on the proposed reduction in coal rates, Pennsylvania mines all rail to New England, in which the New England Paper & Pulp Traffic Association attacked the existing scale as unreasonable and prejudicial will be held in Washington, March 10. Preliminary hearing was at Concord, N. H., last fall.

The rate on wood pulp from Boston to Niverville, N. Y., of 17½c. per pound has been cancelled.

Indicating the far-reaching influence of motor trucks on freight rates is a proposal of the New England Freight Association, to be put into effect voluntarily by the carriers, to reduce the rate on paper boxes from New Haven, Conn., to Winston Salem, N. C., from $1.215 per 100 pounds to $1. The reason is briefly given as motor truck competition.

Richard C. Chapin

Richard C. Chapin, former manager of the Mt. Tom Paper Co. Division, of the American Writing Paper Co., died early last month at his home in Holyoke in his 72nd year. He was born in Willimansett and graduated in class of 1884 at West Point. He maintained his interest in military affairs and was secretary of his class at the time of his passing.

Mr. Chapin began his service in the paper industry in 1885 at the Riverside mill, later being transferred to the Nonotuck Paper Co., and for several years prior to his death was manager of the Envelope Paper Section of the American Writing Paper Co., sales division.

He is survived by his widow, three daughters and one son.

Worthy Paper Co. Ass'n, West Springfield, Mass., is another New England mill that has adopted Tolhurst Centrifugals for removal of all impurities from paper.

Hurlburt Paper Co., Lee, Mass., is now advertising its product and its methods and equipment for manufacturing

Jones

A name that has won a world-wide reputation through 75 years devoted to paper-making progress

"MORE EFFICIENT"

SAYS A MILL MANAGER

THE Manager of a large Eastern mill has this to say about their recent installation of JONES BEATERS:

" . . . . we are very much pleased with the general results obtained and believe that this beating engine is more efficient on this work than any beaters we have tried or, in fact, any similar beaters that we have seen in other mills"

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which it claims to be the last word in efficiency and assurance of cleanliness and quality of the paper. The mill has been entirely renovated and re-equipped for fine paper manufacture.

Simonds Saw and Steel Building Unique Factory

A windowless structure which will embody many new ideas of industrial construction, heretofore untried in a building of its type and size for manufacturing purposes, is being erected by the Simonds Saw and Steel Co., Fitchburg, Mass. The building has been designed for perfect conditions, which, of course, means controlled conditions. As stated by Gifford K. Simonds, general manager of the company, at the cornerstone ceremonies, since sunlight cannot be controlled, it is necessary to have light control conditions. Everything about the new building has been planned for the greatest comfort and welfare of the employees.

An interesting coincident marked the laying of the cornerstone of the new building, which was witnessed by a gathering of over 500 spectators, including officials and industrial leaders and employees. Thomas F. Howarth, vice-president of the company, officiated at the ceremony, on that date observing his fiftieth anniversary as an employee and officer of the company.

George Thomas Keyes

George Thomas Keyes, president and treasurer of the Nashua River Paper Co., East Pepperell, Mass., died at his home in Boston, December 17, at the age of 63 years.

Mr. Keyes was born in Vermont and graduated from Harvard in 1889. He became associated with the Fairchild Paper Co., which he later acquired and developed into the present company, one of the three leading kraft mills of New England. Through his efforts, the bag side of the business was developed and new personnel recently acquired in the selling of his paper. Mr. Keyes was a representative in the Massachusetts legislature at the time of his death and his passing was mourned by his colleagues in the lower house where he had rendered valuable service.

Mr. Keyes is survived by his widow, a son, a daughter, and his brother, Senator Henry W. Keyes.

Textile Company Pays Big Dividends

A 97½ per cent cash dividend has just been paid to its stockholders by the Knox Woolen Co., of Camden, Me. This company chose a most propitious time to distribute this dividend which was not the result of this or any other one year's earnings but was an accumulation built up over a period of years which was not required in the conduct of its business.

The Knox Company has for a number of years been a leading manufacturer of papermaking felts and jackets, and other woolen specialties to the paper trade.

Homer Griffin, assistant purchasing agent of the Dennison Manufacturing Co., Framingham, Mass., becomes general 1931 chairman of the association's active paper committee, succeeding W. J. McClellan, of Carter Rice & Co.

New England sales division of Champion Coated Paper Co., 201 Devonshire street, George T. Standbridge, New England manager, has sold more paper in 1930 than in 1929; had done so, in fact, at the end of 11 months of this year, in keeping with the company's general record.

Bids are understood to have been closed on the $100,000 addition to the Crocker Burbank Co. Ass'n power plant at Fitchburg, Mass. The addition is to be one story, 60 by 80. F. J. Sill, engineer, Westboro, Mass., is in charge of construction.

Speaking to their Boston and New England distributors, Storr & Bement Co., at a sales meeting of the merchant

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Old timers who followed the trail in earlier times laid down a precept all should heed on "keeping on the move toward better things".

A trial of Orr Felts would be a move in the right direction.

A few days longer wear than you have been accustomed to receiving would be decidedly worth while. More than a few mills now benefit from their adoption of this better, more serviceable brand of Felts.

Consult us on your requirements.

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WANTED—Complete Kraft Pulp Mill, 30 to 50 tons production per 24 hours. Opportunity for idle mill with modern equipment. Send complete description, make of each machine, when built, lowest price, etc. San Rafael Paper Co., Box 469, Mexico City, Mexico.

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Part I contains the first twelve lessons and two separate articles—A Problem in Head Box Control and The Degree of Hydration.

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organization, Watson Gordon, O. M. Curtis and Ernest Johnson of the S. D. Warren sales division, emphasized that 1931 advertising and sales promotion policies would embrace a more direct effort to assist the printer in selection of paper, to achieve economy in paper buying.

Bird Employees Receive Bonuses

Bird & Son, Walpole, Mass., maintained its past policy of awarding Christmas bonuses, and during Christmas week distributed $75,000 among its employees. The distribution of the bonuses was necessarily somewhat different than in former years. In view of the depressed conditions, it was felt entirely fair and equitable to give bonuses only to the factory workers who have had their earnings reduced. Salary workers who have been retained on full time were not included in the plan.

Notwithstanding the conditions during the past year, Bird & Son has maintained its financial condition, and has called in all of its outstanding first preferred stock at $110.00 per share, $20.00 in excess of price paid by employees a few years ago. President Phillip R. Allen announced that as a result of calling this stock, the corporation will be entirely out of debt on February 1.

❖ OHIO ❖

Coated Paper Products Changes Name

Effective December 31, the Coated Paper Products Co. of Minerva, Ohio, will be known as the Minerva Wax Paper Co., the change in name having been approved by the Secretary of State. The change in name was authorized by a special meeting of the stockholders of the company, Oct. 29, when 85 per cent of the outstanding stock voted for the change in name.

The Coated Paper Products Co. was organized in 1919 with a preliminary capital of $50,000. Since that time the development of the company has been rapid and has been along the lines of waxed paper products. It has specialized in manufacturing paper for bread wrapping and also supplying waxed paper for home use. The product has become universally known as "Minerva" so it was believed that the name of the corporation should be changed.

The capitalization of the company has been increased to $75,000. No change in the personnel of the company will be made according to General Manager H. M. Gluck.

Bierman Starts Business

Vernor D. Bierman has resigned his position as treasurer of the A.P.W. Paper Company, of Abany, N. Y., and opened his own offices as a certified public accountant, in the Albany County Savings Bank Building, in that city. Mr. Bierman was with the A.P.W. Paper Company for 12 years, in the capacity of comptroller as well as treasurer, and prior to that, had considerable experience with the well-known firm of Ernst & Ernst. He is a charter member of the American Institute of Accountants, and a C.P.A. of Ohio. His practice will include tax consultations and cost work, as well as accounting and auditing.

Morse Chain Co. Annual Banquet

The second annual joint banquet of the officials and employees of Morse Chain Company, and Morse affiliated interests, Ithaca, N. Y., was celebrated December 9. A bountiful repast was enjoyed and a variety of entertainment had been provided.

The principal address of the evening was given by Frank L. Morse, president and treasurer of the Morst Chain Company. In the course of his remarks, Mr. Morse spoke very optimistically of business conditions, and predicted a business and industrial upturn by Spring.

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SOUTHERN

Gulf States Paper to Transfer Plants

H. D. Warner, secretary-treasurer of the Gulf States Paper Corporation, has announced that his organization will transfer its paper and pulp mill and its bag factory from Braithwaite to Tuscaloosa, Ala., according to dispatches from the Alabama city. The corporation controls the E-Z Opener Bag Company and has extensive lumber holdings near Tuscaloosa.

Because these holdings assure a supply of cheap raw materials, the decision to transfer the industries from Braithwaite to Alabama has been reached after several years' consideration. Dispatches from Tuscaloosa said that Mr. Warner predicted that the consolidation of the corporation's Braithwaite and Tuscaloosa plants in the latter city will increase the output of the Alabama mill 50 per cent and increase its pay-roll a similar amount.

Removal of machinery from Braithwaite, according to the announcement, will be started this month and will require approximately four months. The corporation established its mill in Tuscaloosa two years ago to manufacture kraft paper and bags, constructing a $5,000,000 plant and employing 1,000 persons.

Despite a bad market during 1930, the plants of the Bogalusa Paper Company, Bogalusa, La., were able to run at capacity during 1930. This was accomplished by reducing the cost of production and making several improvements at a cost of several hundred thousand dollars. Natural gas and high tension electricity were among the new features employed at their plant as well as enlargement of both the pulp and board mills. The plants of the Bogalusa Paper Company give employment to approximately 650 men not to mention the plants of the Gaylord Box Company and the Union Bag and Paper Company which secure all their material from the paper company. The paper industry furnished a cash crop to the farmers in this section who supply considerable pulpwood, and all waste at the Great Southern Lumber Company is eliminated and made into paper.

D. J. Murray Mfg. Co. Has Good Year

The D. J. Murray Mfg. Co., of Wausau, Wis., enjoyed a 1930 volume of business slightly in excess of that for 1929, and the present year promises to show even greater improvement, according to C. E. Staky, secretary and general manager.

This company, one of the pioneer builders of pulp and paper mill machinery, recently shipped the largest single order for this kind of machinery received during the year just closed, and they believe it to be one of the largest shipments ever made of this class of equipment from one source to a single customer. This equipment included ten rotary incinerators, ten disc evaporators and two pulpwood chippers of the latest design, roller bearing and direct connected to synchronous motors, and was shipped to the Southern Kraft Corporation's new 300-ton mill at Panama City, Fla.

Fuller Lehigh Moves Plant

According to a recent announcement, the Fuller Lehigh Company, a subsidiary of The Babcock & Wilcox Company, will move its manufacturing operations and executive offices from Fullerton, Penna., within the next few months. Its manufacturing operations are to be consolidated with those of The Babcock & Wilcox Company at its Barberton, Ohio, plant. The executive offices will be located at 85 Liberty street, New York.

The company will continue to maintain sales offices in all of the principal cities of the country and will provide at Fullerton, a substantial stock of repair parts and Elverite products.

Thomas H. Savery, Jr.

Thomas H. Savery, Jr., one of the best known men in the paper mill field, passed on at his home in Chicago on Wednesday, December 31, 1930, following injuries received in a fall. Services were held at his home on Saturday afternoon, January 3. He is survived by his wife Lida M. Savery, his daughters Esther, Helen and Eleanor, and two sons, Thomas and Donald.

Mr. Savery was graduated from Cornell University as a mechanical engineer. He was for ten years manager of the Rocky Mountain Paper Company, Denver, Colorado, then salesman for Sandusky Foundry & Machine Company. He was a director of the Shenandoah Paper Company and of the Harpers Ferry Paper Company, Harpers Ferry, W. Va. Of late years he maintained offices in the Board of Trade Building, Chicago, as representative of the Nash Engineering Company, South Norwalk, Conn., and the Bird Machine Company, South Walpole, Mass.

Mr. Savery was a 32nd Mason, a member of the Union League and Hamilton Clubs, Chicago, and the Christian Science Church. He was descended from an old Quaker family and his father was prominent in the early days of the paper industry in this country as a paper machine designer, having been president of the Pusey and Jones Company. He will be greatly missed at conventions of paper industry associations at which he was a regular attendant, and in the mills which he visited so regularly for the past 20 years.

It is understood that S. D. Warren Co. bleached sulphite pulp mills at Cumberland Mills, Me., are being gradually dismantled as the company turns to the Pacific Coast for nearly all of its sulphite fiber.

Alfred W. Foster, secretary of the Paper Makers' Association of Great Britain and Ireland, died in London on December 1, 1930, after a brief illness. Mr. Foster was 56 years of age and his connection with the papermakers' association began in 1913.

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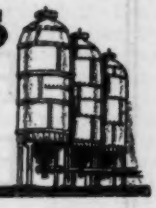

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Digestion of Pulp

THE process depends on the use of an aqueous sulphurous acid solution with the addition of ammonia. It differs from the usual processes of this type in that the quantity of ammonia in ratio to that of sulphurous acid is so slight that the digestion liquor consists essentially of free sulphurous acid. The result is that digestion takes place under the same conditions as if no ammonia were present at all. Nevertheless, the presence of ammonia in the liquor avoids the condensation reactions that usually take place and accomplishes this by immediately combining with the aldehyde, ketonic and carboxylic groups that are split off from constituents of the wood. The pulp that is obtained by this process is similar to that obtained by the usual sulphite digestion process, but the quality is better and the yield greater.

The process is carried out in the following manner. The wood is preliminarily treated in the usual manner employed in suphite digestion. It is placed in a cement-lined digester, which is resistant to pressure and the action of sulphurous acid. The aqueous sulphurous acid solution is obtained by saturating water with sulphur dioxide at the ordinary temperature and at a pressure required for the production of a seven per cent solution. A strong ammonical solution is added to this liquor in such a ratio, that the finished liquor contains 0.25 per cent of ammonia by weight. The liquor is pumped into the digester in a quantity in ratio of six parts by weight to one part by weight of the wood. The cooker is closed and heated by steam for four hours to a temperature of 100 degrees C. The steam is introduced in such a fashion that the wood in the digester is well agitated thereby. After the wood has been maintained for two hours at a temperature of 100 degrees C., the temperature is raised to 110 degrees C. within one hour, and the digester is maintained at this temperature for 15 to 18 hours. The excess sulphur dioxide is removed by being blown out during the release of the pressure and is collected and used for strengthening sulphurous acid liquor. The pulp, which is washed, can be readily bleached and is obtained in a yield of 51 per cent on the weight of the original wood, which compares very favorably with the usual yield of 47 per cent. C. F. Cross and A. Engelstad, German Patent No. 495,146.

Deposition of the Causticizer Mud in the Sulphate Process

DIFFICULTIES arise in the separation of the mud in the causticization process, which cause undue prolongation of the settling process. Loss of time and increase in overhead cost result. There are many causes of this phenomenon. A high silica content in the straw used as raw material and also in the limestone used in the preparation of the liquor can often slow down the settling process materially. Difficulties are also caused by the presence of iron compounds.

These difficulties are discussed in some detail and the mechanism of the process which results in the slowing down of the operation is explained. The best solution of the problem is to remove the iron or rather keep it away from contaminating the materials used in the process. When the sulphate contains iron, then it can be removed by dissolving the salt and precipitating the iron, with the result that the harmful iron sulphide is not formed. A certain amount of iron will come into the process, nevertheless, for the reason that most limestones contain some iron.

Laboratory tests have shown that strong heating will increase the size of particles of iron sulphide. It therefore follows that a high temperature during the causticizing process will have a favorable effect not only upon the iron sulphide but also on the particles of precipitated calcium carbonate and make the filtration of the caustic liquor much easier and more rapid. The specific gravity of the liquor is also somewhat reduced by the use of high temperatures and this also has a favorable effect on the speed of settling. However, the potency of this effect is small as shown by tests in the mill.

Tests were carried out to determine the rapidity of the settling of the mud in the causticizers at various temperatures. The results obtained were not so regular as those in the laboratory and this is due to the fact that a certain amount of variation took place in the factors, such as concentration of the liquor, content of caustic and sodium sulphide in the liquors, percentages of silica, iron and lime in the limestone and the like. There was no question that the use of high temperatures constitutes a practical way of accelerating the settling of the mud in causticizing operations. B. Wiesler, Der Papier-fabrikant, 1930, pages 559-560.

Circulation of the Liquor in Sulphite Manufacture

INCREASED size of the digester and more tightly packed chips render the circulation of the liquor difficult. In large sized cookers the variation in the digestion of the stock may be as much as a maximum of 30 per cent. Irregularities are found both in direct and indirect digestion, and these irregularities can be overcome only by forced circulation of the liquor. The use of heaters for the heating of alkali liquors has been found to work unsatisfactorily due to the incrustation of the heaters. The author describes two new circulatory systems.

One of these, known as the Wallin system, employs a liquor ejector located inside of the digester, to which is fed in part steam and in part a mixture of steam and sulphur dioxide from a gas injector, which is connected with a container, in which the liquor carried over from the digester, when the pressure is released, is collected. The digestion liquor can be compressed into the lower part of the digester or gas can be taken from the upper part and forced into the lower part. The varying composition of the digestion liquor in each stage of the digestion process is kept as constant as possible by good circulation of the liquor and uniform distribution of heat. Comparative tests show variations of 18 per cent in the Bjoerkman coefficient without circulation of the liquor, while when forced circulation process is employed the variation amounts to only between two and one-half and five per cent.

The second system of circulation, the Brobeck system, works without there being any formation of deposits. A more uniform pulp is obtained at greater yield per unit volume of the digester and with lower consumption of wood per ton of pulp. The digestion process is carried out with a steam pressure of two atmospheres. The process allows with ease the production of wood of any suitable and desirable quality. B. Smaert, Svensk Papp. Tidn., volume 33, page 235.

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	Total	$2,331.00
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	2—Labor, first coat	580.00
	3—Labor, second coat	404.00
	4—CHEAP PAINT	273.00
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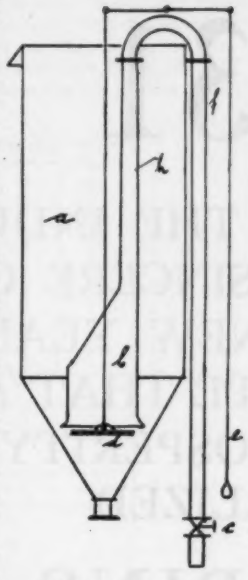
Removal of Deposits in Settling Tanks and the Like

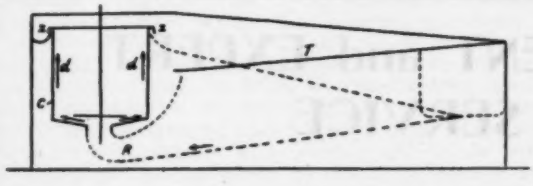
THE new device is used for the removal of deposits in settling tanks and is particularly suited for use in tanks which have a cone-shaped bottom. As seen in the accompanying illustration, the siphon consists of the tube (f) which is closed by a valve. This tube widens out into the enlargement (b), the purpose of which is to allow the entrance and exit of a rotatable plate (d). The enlargement is cylindrical in form. The mixture of stock and water enters the tank (a) at the top and the fibers finally settle to the bottom and collect in the cone-shaped portion. The clear water runs off through an overflow device.



The siphon works as follows: The valve (c) is opened. Pulling down on the rope (e) lifts the plate (d) into the portion (b) with the result that a certain amount of water is thrown upwards into the pipe (f) with the result that the siphon is started working. During this time the plate (d) is maintained in an oblique position so as to allow the water and stock to flow into it without hindrance. J. Faust, German Patent No. 494,367.

Bleaching Pulp

THE illustration shows a longitudinal view of the apparatus that is used in carrying out this process. The stock, which is to be bleached, is fed through the inlet (R) in the bottom of the drum (C), which is a rapidly rotating affair with solid walls. The shape of the apparatus cylindrical or



slightly conical. The centrifugal force, which is generated by the revolving drum, throws the stock against the walls of the drum in a thin layer (d). The stock moves upwards as shown by the arrow. The thin layer of the stock affords a large surface for the action of the bleaching agent. The stock finally travels to the top of the drum and passes over the edge (Z) of the drum (C). From this point the stock travels through the conduit (T) which surrounds the rotating drum (C) on all sides. The stock thus again reaches the inlet (R) to the drum (C) and is processed again. The depth of the stock in the conduit or channel (T) is about half the height of the drum. Automatic circulation of the stock is thus insured. P. Erkens, Dueren, Germany. German Patent No. 503,451.

Bamboo-Lignin

BAMBOO is specially suitable for a study of lignin formation in vegetable material because the shoots grow very rapidly. Shoots 5.8 meters long were divided into three parts, each part being then dried and pulverized, and the dry powder extracted exhaustively with alcohol-benzene mixture and dried in a vacuum. Lignin was removed with 72 per cent sulphuric acid, and its methoxyl number determined by the Zeisel method. The methoxyl numbers for the samples were also calculated on the assumption that this number represents lignin. Both calculated and observed values show a decrease from the base to the top of the shoots, but good agreement is not found.

It is considered probable that in the samples more remote from the base of the shoot the whole of the methoxyl is not fixed to lignin, and it is concluded that the lignin is methylated gradually according to the growth of the bamboo, or combines with the residue which contains methyl in order to give the higher values determined. Some properties of bamboo-lignin have been compared with those of wood-lignin, and it is found that they behave similarly. Thus carbon, hydrogen, ash, and methoxyl contents are similar in amount to those from spruce wood-lignin. Also both spruce wood and bamboo chips give a green coloration on immersion in concentrated hydrochloric acid, while, on separation, the lignin gives a grayish-violet coloration before, and a salmon-pink after, washing with boiling water. This suggests that bamboo-lignin also has a heterocyclic structure. The distribution of oxygen in the lignin as hydroxyl, methoxyl, etc., is discussed. K. Sisido, Journal of the Cellulose Institute, Tokio, 1930, pages 167-170.

Controlling Moisture

A WET bulb, acting thermostatically, supplied with air drawn from the vicinity of a pulp sheet substantially short of the completion of travel on the drying cylinders, regulates the supply of heat to the dryer-cylinders thus controlling the moisture content of the paper, board, etc.,

FIG.2

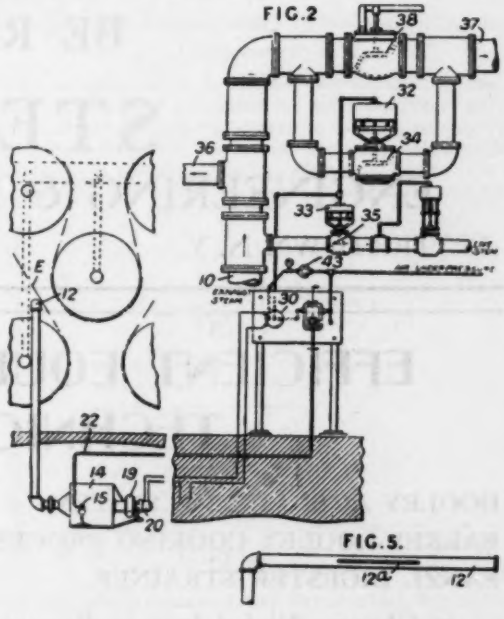


FIG.5.

leaving the dryer. A fan (19 in Fig. 2) with a motor (20) draws air through a slit (12a in Fig. 5) in a pipe (12) extending across the sheet (E) and supplies the box (14) containing a wet bulb (15) etc. The wet bulb is connected by pipe (22) to a diaphragm attached to a valve, controlling a compressed air supply for valve-operating motors (32) and (33). Exhaust steam passes from a supply pipe (10), through a valve (34) to an outlet (37) or through a pipe (36) supplying the dryer-cylinders, a manually operated valve (38), and a live steam valve (35) being normally closed.

An increase in the moisture of the air supplied to the wet bulb increases the pressure in it and opens the valve to increase the supply of compressed air to the motor (32) thus closing the valve (34) and increasing the supply of exhaust steam to the dryer-cylinders. Further compressed air supply opens the live steam valve (35). Included in the compressed air system is a reducing valve (43) and a three valve (30) which carries a switch for the motor (20). For temporary stoppage of the dryer, valve (30) is operated to supply air from the reducing valve to maintain a reduced heat supply to the cylinders, the motor (20) being switched off. F. E. Klages, The World's Paper Trade Review, 1930, page 1694.

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Folding Strength of Pulp

THE study of the folding strength of paper is common but that of the fibers themselves is not. The study was made to establish the following factors which manifest themselves in the test. First, there is the drying of the sample. The questions involved here are the effects of drying under a definite pressure and tension, of drying with

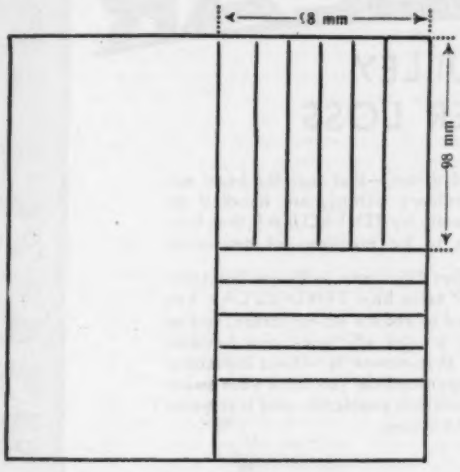


Figure 1

the sample hanging free, of drying with the aid of an experimental drying cylinder and felt. Another factor was the weight of the sheet.

The manner of cutting samples is indicated by Fig. 1. This method avoids any invisible effect of drying under pressure.

Numerous tables are given in the original article, indicating a large number of individual experiments. Some of the conclusions drawn from this study are as follows: the double folding test, when made alone, is useless for comparing samples of pulp, for in the first place the subsequent weight of the paper is not established; in the second place sheets of greatly varying weights are tested in various mills; in the third place, it is not possible with normal beating, for example, to develop the maximum folding strength

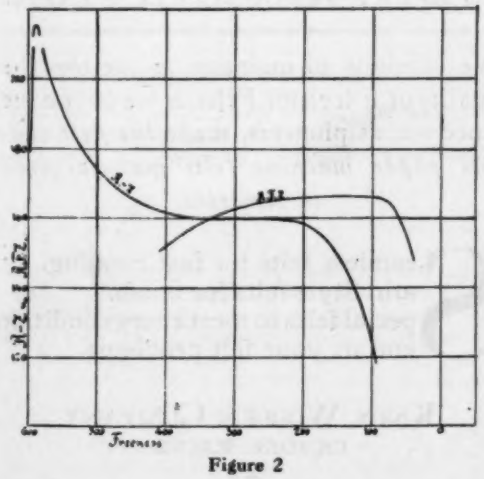


Figure 2

of the pulp as is always sought in practical work. The maximum relative folding coefficient is constant for freeness 28 to about 100. It is independent of the copper number. The tearing coefficient is constant for all beating degrees from freeness 400 to 200. Three classes must however be distinguished: one, sulphite; two, sulphate and soda; and third, sulphite pulps which have been treated with strongly alkaline liquors, and whose copper numbers lie under 1.60 for bleached pulp.

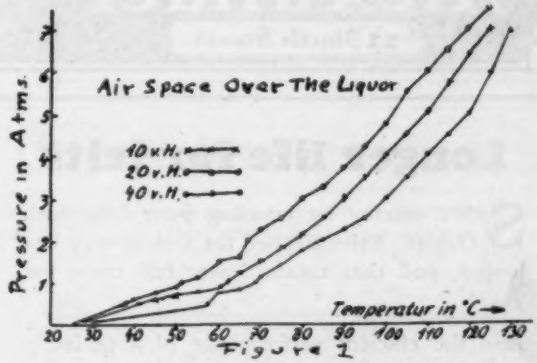
Figure 2 shows the relation between the tearing strength and the folding strength and the freeness of the pulp.

In the case of sulphite pulp, bleached and unbleached, the tearing strength is approximately as great as the relative folding strength. The relative folding strength is lower than the tearing strength in the case of pulps, which have either been treated with alkali or bleached in a strong alkaline liquor. The relative folding strength is higher than the tearing strength, likewise in the case of bleached pulps, when the unbleached pulp is intentionally digested in such a manner as to produce a product of higher folding strength.

The fact that the relative folding strength stands up against all influences and remains constant and that it is regular in all sorts of stock makes this method of evaluating pulps of considerable importance. It should be mentioned that all the pulps were allowed to remain at least one day exposed to the room temperature, before they were tested. This is not an unimportant matter with respect to the behavior of the copper number in many pulps. Dr. E. Richter, Technologie und Chemie der Papier und Zellstoff-Fabrikation, 1930, number 10, 133-141.

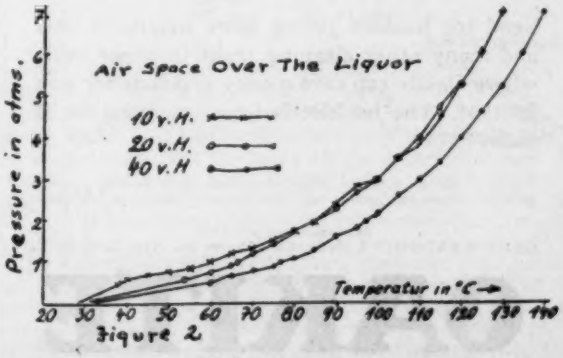
Pressure and Temperature in Sulphite Liquor Containers

IN order to save steam, to shorten the duration of the digestion process and to reduce the consumption of pyrites or sulphur, it has become customary in modern sulphite mill practice to heat the tower liquor with the gases released from the digester. In certain mills the digestion liquors are removed from one cooker into another and into auxiliary tanks



or containers, which contain tower liquor which has already been preheated by the waste gases. Patents have been taken out on this process to show its feasibility and economy.

In order to avoid losses of sulphur dioxide, the liquors must be brought into tightly closed containers. In order to afford



concise information on the manner in which the pressure changes in these vessels when the temperature is changed, and on the influence of the gas space on the pressure,

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quantities of sulphite liquor, namely 1,200 cc., 1,600 cc. and 1,800 cc. each, were heated in an autoclave of two liters capacity. The gas space in these three cases formed 40, 20 and 10 per cent respectively of the capacity of the autoclave. The experiments showed that at a content of 4.5 per cent of total sulphur dioxide, a temperature of 80 degrees C. and a gas space of 20 per cent, the pressure was three atmospheres, while at a temperature of 110 degrees C. it was six atmospheres. At a 40 per cent gas space, the pressure at a temperature of 80 degrees C. was reduced to two atmospheres and at a temperature of 110 degrees C. to four atmospheres. The exact manner in which the pressure varies with the temperature may be seen from the accompanying figures.

In cases, in which only the waste gases are used for preheating the liquor, and where the temperatures existing in the containers were from 70 to 80 degrees C., the containers or tanks need be built to sustain a pressure of three atmospheres. Prof. S. Fotijew and B. Moisejew, Zellstoff und Papier, 1930, pages 716-7.

Linings for Sulphite Digesters

THIS article is a rather interesting discussion relating to the progress made in the lining of sulphite digesters with materials that stand up against the corrosive action of the sulphite liquor. The opinion of many practical men that a mixture of litharge and glycerin, or cement, is the only suitable material for lining the digester is contradicted. Acid-resistant stone has been successfully used in Scandinavia for this purpose. Neither cement nor a mixture of litharge and glycerin was however used as the mortar. What were used were mixtures of highly acid-resistant, extremely finely pulverized substances, such as litharge, fluorspar, felspar, glass powder and the like, to which asbestos was added. This mixture was then formed into a mortar by the addition of water glass. The water glass combines with the bisulphite to form insoluble monosulphite and silica as well as calcium silicate, while the easily soluble sodium sulphite and the excess water glass solution, which must always be present, is compressed outwards through the openings purposely arranged in the digester shell. The addition of asbestos adds considerable elasticity to the mortar. It also permits the penetration of the digestion liquor so that insoluble monosulphite may be formed and deposited. It has been found that this method of lining the digester gives better results than the cement linings. Dr. A. St. Klein, Zellstoff und Papier, 1930, 715-6.

Pulp Digestion Process

EXPERIMENTS have shown, that the difficulties of the digestion of wood and the like with a solution of ammonia are avoided, when a cyanide solution is used as the digestion liquor, in which the cyanides by decomposition with water yield ammonia. The operation is carried out in the following manner. The cellulose-containing materials are digested with a solution, which contains for example alkali cyanides. The cyanides are decomposed into ammonia and a formic acid salt according to the following equation in this process.

$$NaCN + 2H_2O = NaCOOH + NH_3$$

Inasmuch as the digestion liquors in this process do not contain free ammonia which is formed first at higher temperature on heating the digester, the liberated ammonia is immediately consumed to dissolve the incrustated matter. Increase of pressure, as is practiced in the ordinary digestion process and in the old forms of ammonia digestion process, are avoided. The free space of the digester does not contain ammonia vapors, which go to waste when the pressure on the liquor is relieved. An additional advantage is, that the formic acid salts, which are formed during the progress of the digestion, improve the digestion process. Dr. O. H. Sido and H. Wiederhold, German Patent No. 505,589.

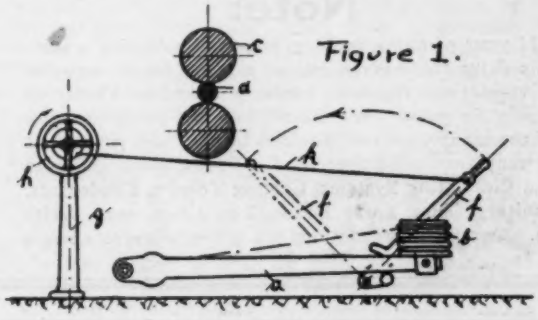
Pulp from Beechwood

THE literature on the subject is well reviewed and many references are given. The problem involved is to obtain a pulp of high quality and of wide utility from beechwood. The question is whether or not that is possible in the case of a wood of this character with a very short fiber length. It is possible to produce paper of good strength characteristics theoretically from beechwood. Various processes are compared with one another. These include the pure soda process, the sulphate process, Haegglund's process and the process of the Verein fuer Chemische Industrie A. G. The Haegglund process is patented in British Patent No. 292,534. The Verein fuer Chemische Industrie process is patented in German Patent No. 507,869. This process shows that it is possible to obtain a pulp from beechwood in good yield. The strength of the fibers is satisfactory. The yield is 55 per cent. This process is shown to give the best results of all those proposed for the digestion of beechwood. Dr. R. Runkel, Zellstoff und Papier, 1930, pages 773-5.

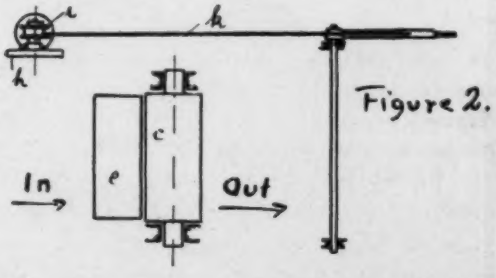
Mechanical Actuation of the Load Weights in Small Calenders

THE application of the load on the calender rolls is accomplished in all types of calenders by means of weights, which act through the intermediary of a lever on the bearings. The actuation of these weights or the application of the load is effected in small calenders by means of a lever or hand wheel.

Figures 1 and 2 show methods of application of the load weights in a three-roll friction calender for the treatment of



cut paperboard that has been glazed. The loading rod (a) acts with changeable weights (b) in the known manner on the bearings of the upper paper roller (c). The paperboard, whose surface is to be calendered, must be treated after glazing with a smoothening paste such as soap powder, beeswax and the like. The drive of the rolls is obtained by means of the intermediary steel roller (d). The introduction and



removal of the paperboard is accomplished as is shown in figure 2, which is a plan view of the apparatus. Only one person is required to operate this apparatus. The table (e) on the feed side of the machine facilitates the introduction of the paperboard. The discharge of the paperboard from the calender rolls takes place automatically. By installing a properly located mirror across the working width of the machine, it is possible to observe its entire operation from the feed side.

The operating wheel (h) is shown supported on a column (g). A rope drum (i) is also provided. The rotation of the handwheel (h) in the direction of the arrow (see Fig. 1) can bring the lever (f) into the position shown in dotted lines in the figure, this being accomplished by the steel wire (k). When the lever (f) is in the dotted line position, load is removed from the calender rolls. Zellstoff und Papier, 1930, page 718.

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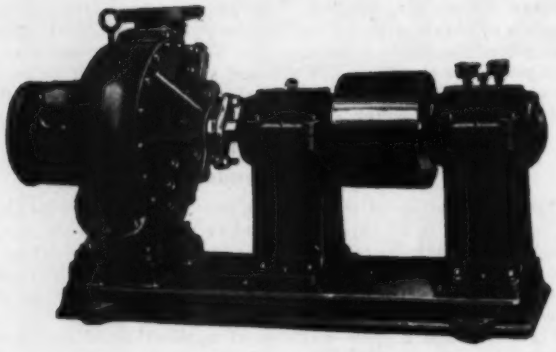

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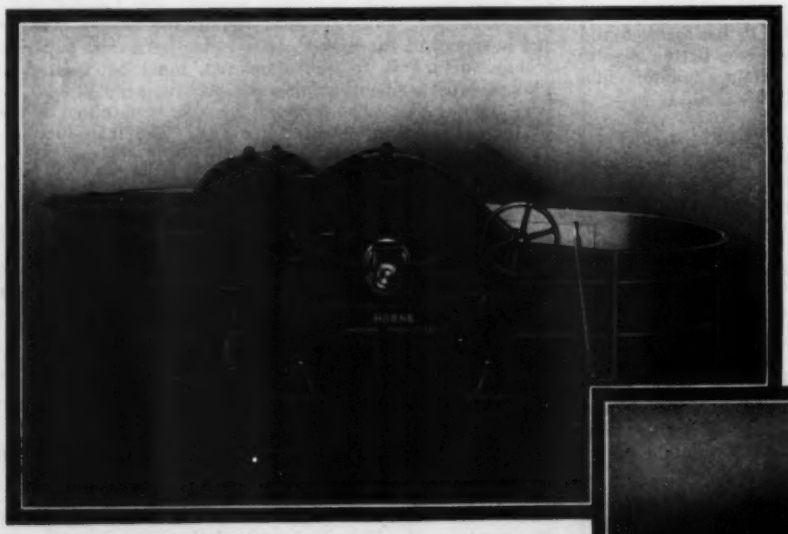

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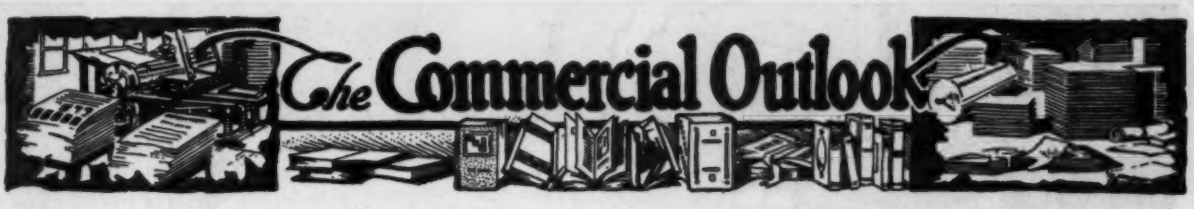

New York, January 2, 1931.

A NEW year has arrived, and there is great hope, if not a good deal of expectation, that it will bring with it more favorable conditions for the paper industry than have been experienced in some months. The feeling is common in the paper trade that the market situation during the year cannot be as poor as in 1930; that if changes occur—and there is small doubt that they will occur—they will be in the desired direction, namely, toward a broader demand for paper, more satisfactory market prices, and general improvement of the paper manufacturing and merchandising industry.

The old year passed out with the market ruling decidedly quiet. Pre-holiday business was fair, but, according to most reports, fell somewhat short of normal dimensions for that period of the year. As yet buyers are still very cautious in their operations in the paper market. Throughout December a policy was clearly in vogue among consumers and converters to cut down stocks to as low a level as possible for year-end inventories, and new orders were placed only when actual necessity of supplies obliged purchases. The likelihood is that stocks of paper of practically all kinds and in all consuming, converting and distributing quarters are now lower than they have been in years, and it is on this factor that many paper manufacturers and merchants are depending for the development of a better demand and a livelier market condition early in the new year, since it is believed buyers will perforce have to replenish their supplies and that prevailing prices of paper will encourage buying on a moderately broad scale.

What is needed at present above all else, according to paper manufacturers and dealers, is a reestablishment of confidence. Not until consumers acquire faith in their own markets and in the general business structures will they resume buying in normal fashion. Paper manufacturers themselves—or at least a large majority of them—are doing what they can to revive confidence by putting up a bolder front as regards prices of their product and refusing to grant further concessions simply to effect sales. Also, and this is an important factor, efforts are being extended to keep production of paper and board within the prevailing scope of demand, with a view of creating a stronger technical market situation for paper. As soon as consumers become satisfied that commodity prices are as low as they are going, demand should increase appreciably, and there appears little doubt that once business expands, prices of commodities will improve their position to some extent at least, so that the momentum which probably will get under way should carry business in general far beyond the scope of recent months and cause prices to rise sufficiently to enable producers and distributors to realize more profit in their operations.

Economists and other recognized authorities mostly agree that 1931 will prove a much better year for business and industry than last year. The curve of the business cycle is now pointed upward, it is declared, and expert opinion is that the present year will witness the termination of the period of depression. In all lines—in both raw and manufactured products—production is now, and has been for sometime, on the downgrade; surplus stocks are gradually being reduced; output is being more and more adjusted to the existing demand, and it is but natural that under such circumstances business improvement will be registered. Within the paper industry considerable optimism is expressed, and the majority opinion of paper manufacturers and merchants is that their market situation will be vastly better before the new year has progressed very far.

Production of paper in the United States showed an increase in October as compared with the preceding month, according to the monthly statistical summary of the industry compiled by the American Paper and Pulp Association from reports of identical mills. A total of 499,992 net tons of paper and board of all grades was produced in October, against 466,208 tons in September. On the other hand, the production of all the major grades of paper during the first ten months of 1930 registered a decrease as compared with the totals for the same period of 1929. Shipments of paper from mills during October aggregated 499,634 tons, or but a shade under the output for the month, compared with 465,487 tons in the preceding month, while stocks at mills at the end of October amounted to 291,536 tons, contrasted with 291,381 tons a month earlier.

Production of newsprint in the United States in November amounted to 92,337 tons, while shipments from mills were 93,631 tons, against 105,450 tons produced and 102,808 tons shipped in the preceding month, according to the News Print Service Bureau. Production in Canada in November reached 201,703 tons and shipments were 213,673 tons, compared with 213,817 tons produced and 221,748 tons shipped in October, making a total output for both countries of 294,040 tons in November and shipments of 307,304 tons, contrasted with 319,267 tons produced and 324,556 tons shipped in the preceding month. During November, 24,208 tons of newsprint were made in Newfoundland and 1,268 tons in Mexico, so that the total North American production for the month amounted to 319,516 tons.

The Canadian mills produced 182,403 tons less newsprint in the first 11 months of 1930 than in the same period of 1929, which was a decrease of 7 per cent. The United States output was 91,557 tons or 7 per cent less than in 1929, while production in Newfoundland was 29,234 tons or 12 per cent more last year, and in Mexico 4,486 tons less, making a total net decrease of 249,212 tons or 6 per cent. Canadian newsprint mills operated at 67.6 per cent of rated capacity in November, United States mills at 68 per cent and Newfoundland mills at 105.1 per cent. Stocks of print paper at Canadian mills at the end of November totaled 40,372 tons and at United States mills 31,818 tons, making a combined total of 72,190 tons, which was equivalent to 4.2 days' average production.

Leading newsprint manufacturing companies have announced there will be no change in the contract basis on print paper for 1931, which means that market prices will remain the same as during 1930 and puts at rest rumors that a reduction in quotation might be made. Consumption of newsprint in recent weeks has been fairly large, as ordinarily is the case during the pre-Christmas retail season, and most publishers have absorbed their full commitments from mills. Fine papers are exhibiting a steadier price tone, with manufacturers adhering to quoted figures and refraining from exerting selling pressure on the market. Demand is chiefly for small quantities although the aggregate movement of bonds, ledgers and writing is reported fair. Wrapping paper is steady in demand and price notwithstanding cautious operations of buyers in the market. Tissue has enjoyed a little better demand recently, while glassines, parchments, greaseproofs and other specialty classes of paper have been moderately active and showing a fairly steady price tone.

Demand for boxboards continues to fall short of producers' desires, but the market is passably active and gives signs of impending improvement. Quotations are maintained at the advanced levels put into effect about a month ago of $30 per ton for plain chip and $32.50 for filled newsboard delivered in New York City.

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time must be used profitably ➤ ➤ ➤

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Papermaking Rags

At the moment, as has been the situation for sometime past, papermaking rags are in a very quiet market position. Demand is at an extremely low ebb; consumers other than with rare exceptions evince an almost total lack of desire of supplies; dealers and importers are exerting little effort to make sales during the dull holiday season, and the market is about as devoid of important activity as has ever been known. Most paper manufacturers in recent weeks have been more intent on reducing their inventories for the year-end than in adding to their stocks, and offerings of rags to them by sellers at what would appear to be attractively low prices have elicited scant response. In fact, it can accurately be stated that business in papermaking rags is very close to a standstill, temporarily at any rate.

Nevertheless there seems to be in process of development firming market factors. Collections of rags the country over have been curtailed to a bare minimum, as would be expected when the fact is taken into consideration that rags along with nearly all waste materials have sunk so low in value that there is little or no remuneration afforded collectors for gathering supplies. Consequently, stocks of rags in dealers' warehouses are low despite the limited outward movement to paper mills for sometime, and much emphasis is put on the small quantities of rags being received from outlaying collection sources all over the country. Moreover, importations have been greatly reduced. Latest available Government statistics show that imports of papermaking rags into the United States during the first ten months of 1930 totaled 258,000,000 pounds, as compared with 369,000,000 pounds in the same time of 1929, representing a decline of more than 30 per cent. This obviously is a sharp decrease in supply, and means that much fewer foreign rags are available in this country than normally is the case.

Dealers and importers are contending that supply conditions have reached a point where the moment demand increases even to a slight extent, prices of rags will recover in part, and it is argued that should the needs of paper mills expand to any material degree and manufacturers be obliged to come into the market for sizeable amounts of rags, values would doubtless shoot upward rapidly against consumers. Under the circumstances, most dealers are adopting a waiting policy and are not pressing their stocks—such as they are—onto an unwilling market. On the other hand, papermakers express no fear over market eventualities, and seem content to let the future bring what it may, meanwhile confining their purchases to small lots of material which they need for direct consumption.

Prices are strictly a nominal matter as regards most classes of rags for paper mills. So little buying is being done that the market lacks established value levels, and only buyers willing to test out sellers can ascertain with any degree of certainty just at what figures rags can be bought. This is true as concerns new cuttings as well as old rags. Dealers are asking in the vicinity of 8 cents a pound f.o.b. shipping points for No. 1 new white shirt cuttings, 4.75 cents for fancy shirt cuttings, 6.50 cents for new blue overall cuttings, 8.50 cents for new unbleached muslin cuttings, and 6.50 cents for light silesias, but the probabilities are purchases could be effected at below these prices. Old thirds and blues are in fair demand on a price level of 1.75 to 2 cents a pound at shipping points for repacked material. Roofing rags are in an almost dormant market condition at approximately 90 cents per hundred pounds for No. 1 domestic, and 65 cents for No. 2 domestic stock at points of shipment. Foreign rags are all nominally priced and in very sparse demand.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

	New York and Chicago
New Stock—	
White shirt cuttings, No. 1	7.75– 8.25
White shirt cuttings, No. 2	5.50– 5.75
Fancy shirt cuttings	4.50– 4.75
Washables, No. 1	4.50– 4.75
Unbleached muslins	8.25– 8.50
White lawns	7.25– 7.50
Overall cuttings, blue	6.25– 6.50
Black silesias	4.25– 4.50
Canton flannels, bleached	7.50– 7.75
Canton flannels, unbleached	6.25– 6.50
Shoe cuttings, bleached	6.00– 6.25
Shoe cuttings, unbleached	4.50– 4.75
Light silesias	6.25– 6.50
O. D. khaki cuttings	5.50– 5.75
Mixed khaki cuttings	4.50– 4.75
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	2.75– 3.00
Linens, No. 1 white, foreign	11.00–12.00
Light prints, foreign	3.00– 3.25
Old Stock—	
Whites, No. 1, repacked	4.50– 5.50
Whites, No. 2, repacked	2.25– 2.75
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.75– 2.00
Thirds and blues, rough	1.10– 1.30
Thirds and blues, repacked	1.75– 2.00
Lace curtains	4.00– 4.25
Black stockings	3.50– 3.75
Cotton canvas, No. 1	3.75– 4.00
White cotton batting	1.50– 1.75
Roofing, No. 1 (cloth strippings)	.90– 1.00
Roofing, No. 2	.60– .70
Linsey garments, foreign	.90– 1.00
Dark colored cottons, foreign	.70– .80
Blue linens, foreign	2.75– 3.00
Gray linens, foreign	3.00– 3.50
White linens, foreign	6.00– 6.50
Light prints, extra foreign	1.75– 2.00

Rope and Bagging

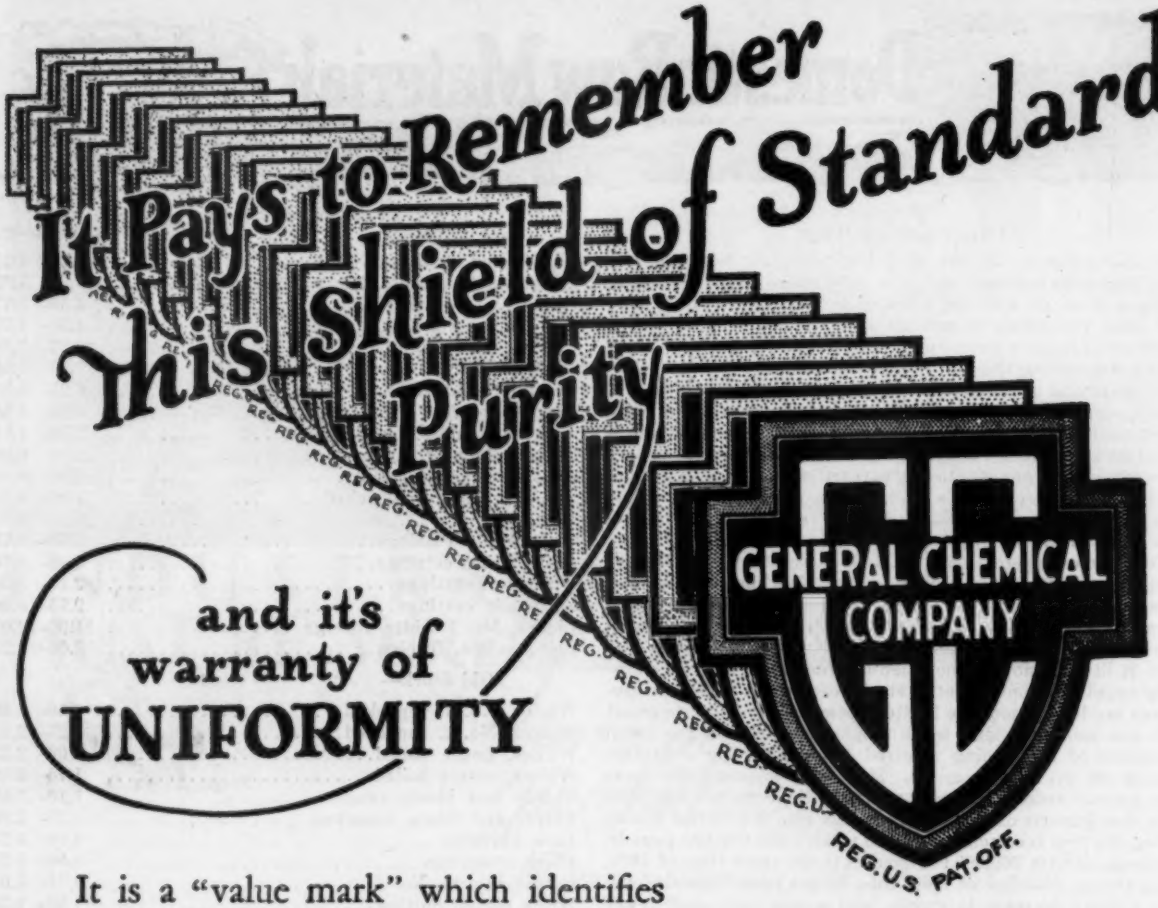
Along with practically all other papermaking raw materials, old rope and bagging are in very slow call, and prices are uncertain and largely nominal. There are so few transactions being recorded that values lack a definite basis, and in frequent instances dealers themselves assert they are not aware what such materials are actually worth. Old rope has eased further to where it is possible for paper mills to buy domestic No. 1 old manila rope at 3 cents a pound f.o.b. dealers' shipping points, and perhaps at less, while No. 1 foreign old rope is on a price level of about 2.75 cents a pound ex dock New York or other American Atlantic poorts. Even at these figures consumers exhibit little disposition to acquire supplies.

Scrap bagging is relatively steady quotably although there is limited activity in the market. No. 1 scrap bagging is around 1.45 cents a pound f.o.b. shipping points, and roofing bagging about 60 cents per hundred pounds. Gunny bagging has been under some inquiry and is reported held by dealers and importers at 1.60 cents and higher per pound at points of shipment.

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.55– 1.65
Gunny, No. 1 foreign	1.50– 1.60

It Pays to Remember This Shield of Standard Purity



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THE NICHOLS CHEMICAL CO., LTD., MONTREAL

353

Scrap bagging, No. 1	1.40– 1.50
Roofing bagging	.55– .65
Wool tares, heavy	1.65– 1.75
Wool tares, light	1.55– 1.65
Manila rope, No. 1 foreign	2.75– 3.00
Manila rope, No. 1 domestic	3.00– 3.25
Sisal strings	1.75– 2.00
Mixed strings	.75– .90

Old Paper

From bad to worse, the market for waste paper is in a sad plight, with consumers showing a surprisingly lack of buying interest, with dealers in numerous cases at a loss to find an outlet for their material, with prices low but still tumbling and with some grades on a value level where it can almost be said they are worthless. The only redeeming feature of the market is that necessity has obliged dealers to reduce their collection and production of stock to an actual minimum; some, in fact a good many, waste paper concerns have shut down completely for a time; others have cut their output drastically, and it is doubtful whether any in the industry are now collecting even anywhere near normal amounts of materials, so that it is expected when demand revives, the supply situation will serve to bring market prices back to where dealers can realize a profit in their operations.

Prices as presently constituted are anybody's guess. There is no definite price on most descriptions of stock. Mixed paper is reported to be available in the East at 10 cents per hundred pounds or $2 a ton f.o.b. New York, and it is declared that some such material has been "given away" to mills. High grades, such as white shavings and kraft, are moving in a restricted way but on a broad price range, everything depending on how eager are shippers to dispose of stock. The following quotations f.o.b. shipping points should be regarded as strictly nominal:

	New York and Chicago
Hard white shavings, No. 1	2.50– 3.00
Hard white shavings, No. 2	2.25– 2.50
Soft white shavings	2.25– 2.75
Colored shavings	.50– .60
Heavy book, No. 1	.75– .85
Crumpled book, No. 1	.55– .60
Ledger stock	.68– 1.00
Kraft No. 1	1.10– 1.30
New kraft cuttings	1.50– 1.75
White blank news	1.60– 1.75
Manilas, No. 1	.40– .60
Manilas, container	.20– .30
Folded news	.30– .50
Sulphite mill wrappings	.50– .60
Old corrugated boxes	.40– .45
New corrugated box cuttings	.50– .55
Mixed paper, No. 1	.10– .30
Common paper	(Nominal)

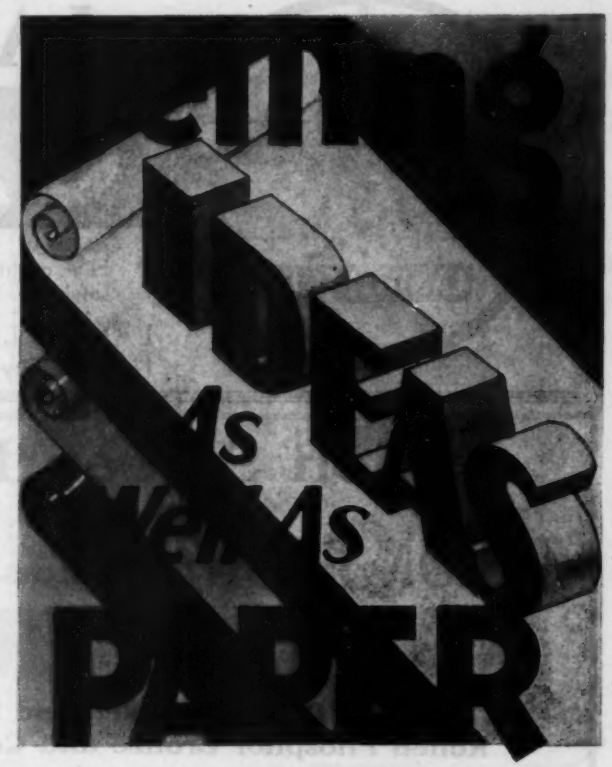
Pulpwood

The market for pulpwood is devoid of interesting feature and shows little or no change. Supplies are moving mainly against contracts, with the principal current activity revolving around the placing of new contracts for 1931 shipments.

Exports of pulpwood from Canada in November amounted to 45,821 cords, valued at $447,644, all of which came to the United States, showing a marked decrease compared with 113,218 cords of a value of $1,186,804 in the preceding month, and also a decline contrasted with 52,904 cords of a value of $589,331 in the corresponding month of 1929.

Mechanical Pulp

Quoted prices of mechanical wood pulp are holding steady in a market developing limited current trade activity but in a fairly strong technical position. There is not much groundwood available in the open market; in fact, mill stocks are at a low point, judging from latest issued statistics, and producers are not pressing sales. However, this situation is more or less offset by consumers engaging in little purchasing of much moment, and prices are on about previous levels of around $30 a ton f.o.b. pulp plants for domestic groundwood, and $28 for Canadian groundwood.



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Foods now travel to the ends of the earth in perfect safety Big business relaxes over the high grade bonds furnished for letterheads and business machines. Schools rejoice over the high grade ruled papers. Housewives are happier because of household specialties.

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Kraft	up to 100 Tons
Sulphite	up to 80 Tons
Soda	up to 60 Tons
Groundwood	up to 50 Tons

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SAVANNAH, GA.
FARGO, GA.
ATLANTA, GA.
MARREBO, LA.
BURLINGTON, ONTARIO
ERITH, ENGLAND

Production of groundwood in the United States in October totaled 62,702 net tons, against 64,044 tons in the preceding month, according to identical mill reports to the American Paper and Pulp Association. Mill stocks declined from 69,413 tons at the end of September last to 53,433 tons at the end of October, thus placing stocks at the lowest point in a long while.

Chemical Pulp

A moderate movement of chemical wood pulp from domestic producing sources into regular consuming channels is reported, but otherwise the market is rather lacking in important activity with consumers displaying aversion to buying unless urgently in want of additional supplies. The tone of prices is none too firm, yet no further recession of note has been recorded. Buyers perhaps are succeeding in getting some pulp at slight concessions from asked rates, but prices have sunk to levels where producers are doing what they can to prevent any further drop.

Domestic bleached sulphite is quoted at about 2.75 cents per pound ex Atlantic seaboard for Pacific Coast sulphite upwards to as high as 4.50 cents for some qualities of bleached sulphite f.o.b. pulp mills. Unbleached sulphite of domestic manufacture is about 2.50 cents at producing plants for book grades, and slightly less for news sulphite, while bleached soda pulp is quoted around 3.15 cents a pound delivered paper mills.

Chemical pulp production in the United States in October amounted to 120,602 net tons, compared with 109,422 tons produced by identical mills in September, according to the American Paper and Pulp Association. Mill stocks at the end of October were 24,611 tons, against 25,234 tons a month before.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	2.75–4.75
Easy bleaching sulphite	2.50–2.75
Unbleached sulphite, No. 1 strong (news grade)	2.25–2.50
Unbleached sulphite, No. 1 book	2.40–2.65
Soda pulp bleached (delivered)	3.00–3.25
Mitscherlich, unbleached	2.75–3.00
Kraft, No. 1	1.90–2.75
Screenings, refined	(Nominal)

Chemicals

Paper manufacturers have been engaged lately in arranging contracts for chemical supplies for 1931, and activity in this connection has comprised the chief life in the market. Casein prices have eased a bit more to where domestic standard ground casein is reported available at 9.50 cents per pound up to 12 cents for the finely ground. New contract rates on caustic soda and soda ash are unaltered from last year, and bleaching powder remains on a contract basis of 2 to 2.35 cents a pound at works for the product in drums.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powdered	3.75 – 4.00
Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00
Casein (duty paid)	9.50 –12.00
Caustic soda, spot delivery	3.30 – 3.35
China clay, domestic washed	8.00 –13.00
China clay, foreign	15.00 –21.00
Rosin, Grade E	5.25 – 5.50
Satin white	2.00 – 2.25
Soda ash, 58 per cent light (bags)	1.32½–.....
Starch, papermakers', in bags	3.62 –.....
Talc (ton)	16.00 –18.00

A petition in bankruptcy was filed December 2 against Louis Weber, jobber of paper of 47 Sheriff street, New York, with liabilities of about $27,290 and assets of $19,790, main item of which is accounts valued at $19,000. The principal creditors include the Brooklyn Standard Bag Company, Industrial National Bank, S. Safier, Inc., Newman-Kahn Paper Company, Inc., and Schrier Bros., Inc.

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A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

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In tank cars and multiple unit cars.

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Built particularly for the paper industry, these agile, sturdy little workers handle loads up to 4,000 pounds. They stay put while being loaded or unloaded from sides or ends. Hundreds in use. *Money back if you're not satisfied.* Ask your dealer or write us.

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Napkin folders with embossers and printers, towel and toilet interfolders, envelope and glassine bag printers.

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Dust proof; Moisture proof;
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Infinitely variable.
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New Papers

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White rag	15–40
White sulphite	8–30
Colored rag	15–40
Colored sulphite	8–30
Ledger—	
White rag	16–40
White sulphite	10–30
Colored sulphite	10–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	7–30
Colored sulphite	7–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.75– 8.00
Machine finished	5.50– 8.00
English finish	5.50– 8.00
Coated and enameled	7.50–12.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York	62.00–
Rolls, transient, per ton, delivered New York	62.00–
Sheets, per ton, delivered New York	67.00–
Sideruns, per ton, delivered New York	47.00–52.00
Cover Stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.70– .80
No. 2 white, 40x36	.65– .75
No. 1 Manila, 24x36	.65– .75
Kraft	.85– .90
Wrapping—	
No. 1 kraft	5.50– 6.25
No. 2 kraft	3.50– 4.50
Southern kraft	3.50– 4.00

Boards—	New York and Chicago
Solid news	35.00–40.00
Straw	45.00–50.00
Plain chip	30.00–32.50
White coated chip	47.50–50.00
Manila coated chip	42.50–45.00
Binders' board	65.00–70.00

Hercules Powder Makes Safety Record

An unusul safety record has been established by the Hercules Powder Company during the month of November 1930 in operating all of its plants throughout the country without a lost time injury to anyone.

This record is unique when it is considered that the Hercules Powder Company's operations consist of ten explosives and heavy chemical plants, two naval stores plants, one cellulose and one nitrocellulose plant, five woods camps, and one Experimental Station. Although individual plants have made excellent records for themselves and maintain a high safety standard, it is the first time in the history of this company that all 20 units (employing 2,805 workers) have operated the same month without a lost time accident.

Hammermill Trade-Mark Suit Settled

The trade-mark "Luna" owned by the Hammermill Paper Company, Erie, Pa., was the subject of a recent suit brought against Parsons and Whittemore, Inc. by Hammermill.

A shipment of Bond paper bearing the counterfeit watermark "Luna Bond Made in U. S. A." recently appeared in one of the South American markets and offers of the paper were found to have been made elsewhere as well. While the watermark was made to imitate the genuine article of the Hammermill Paper Company so closely as to deceive all but an expert, the paper was promptly discovered as not the product of Hammermill. Legal measures were immediately taken to stop the infringement and moves were made to confiscate the goods. It was found that Parsons and Whittemore, Inc. was the shipper.

The bill of complaint filed by Hammermill against this shipper set forth that the plaintiff, having built up a large sale of its product and having duly complied with the law by registering and using its trade-mark for years in world markets, was entitled to full protection against such infringements of its rights.

Rather than permit the case to go to trial Parsons & Whittemore, Inc., consented to the court's entering a decree adjudicating that Hammermill is the owner of the trade-mark "Luna" and therefore is entitled to the exclusive use of that trade-mark in domestic and foreign commerce, and that Parsons & Whittemore's shipment of paper bearing that trademark was an infringement.

Under that decree the court issued an injunction permanently restraining Parsons & Whittemore, Inc., from further infringement of Hammermill's exclusive rights in the trademark "Luna."

A New Towel Product

The Hoberg Paper & Fibre Company, Green Bay, Wis., opens the new year with a brand new paper towel product. This nationally-known organization has been manufacturing paper towels from the day the product first appeared to take the place of the linen towel in institution and public building lavatories. It is peculiarly qualified to produce a product which meets new conditions in paper towel demand.

It is generally recognized that two towels are used by the average individual in drying hands. Where towels are dispensed singly it is therefore necessary to draw two towels from the dispenser and place one over the other, or use two and sometimes three and four towels individually to obtain satisfactory drying of hands.

Hoberg's new Evergreen Double Duty Towel is really a single towel 10 x 20 inches. It is dispensed from the cabinet dispenser folded to a 10 x 10 inch size offering 200 square inches of drying and absorbing strength, folded to a double thickness in condition for instant application to the hands.

The Evergreen Double Duty Towel is cross creped, that is, it is creped both laterally and longitudinally, thus obtaining a cloth-like effect which is peculiarly effective—soft, yet extremely strong and absorbent.

The new towel comes in both bleached white and manila. It is wrapped in an attractive green wrapper with the usual attractive Evergreen label design.

A new cabinet has been designed for this particular towel. This dispenser fits snugly to wall or partition with its bulk extending up and down rather than from back to front. Cabinets are in both white and green enamel.

The new towels and cabinets are now in the hands of Hoberg distributors. Samples will be supplied upon request.

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KRAFT PULP

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Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
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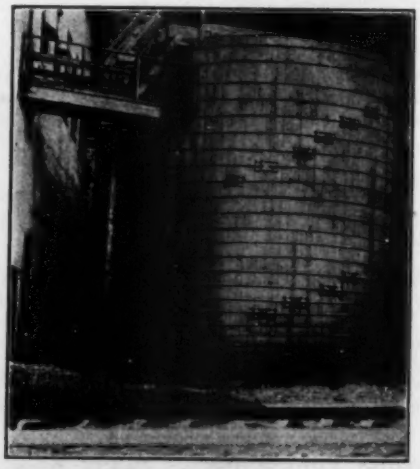

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See our condensed catalog in Paper & Pulp Mill Catalog, Chemical Engineering or Sweets.
Ask about our new Tile Tanks for stock or bleach.

KALAMAZOO TANK & SILO CO., Kalamazoo, Mich.

EXPORTS

While registering some increase over the preceding month, exports of paper and paper products from the United States during the month of October showed an appreciable decline in point of value from the shipments in the corresponding month last year, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. Total exports in October reached a value of $2,362,364, contrasted with $2,298,070 in September this year and $3,221,943 in September, 1929. Exports during the first ten months of the current year aggregated in value $26,255,153, recording a decrease as compared with shipments valued at $31,074,532 in the similar period last year.

Newsprint exports from the United States amounted to 1,645,876 pounds, valued at $61,787, in October, against 5,616,578 pounds of a value of $185,676 in the same month a year ago, with principal shipments last October to South America, China and Cuba. Exports of uncoated book paper were 2,016,414 pounds in October, of a declared value of $138,873, compared with 3,135,175 pounds of a value of $225,055 in the same month last year, while wrapping paper exports were 3,608,679 pounds, valued at $213,335, against 3,827,746 pounds of a value of $258,799 in October, 1929. Writing paper exportations amounted to 1,611,173 pounds, valued at $155,439, in October, against 2,072,782 pounds of a value of $223,521 last year, and tissue paper exports were valued at $77,486 in October, contrasted with shipments of a value of $86,181 in the similar month a year ago.

Exports of boxboard, of paperboard and strawboard in October reached a value of $100,020, compared with $121,448 last year, and other paperboard shipments were of a value of $117,350, against $194,881 in October, 1929.

IMPORTS

Wood Pulp

This is the quiet season in wood pulp, and the market recently has shown limited activity of consequence. Paper and board manufacturers have been more intent on cutting dow' inventories than in adding to their pulp holdings, and such purchases as have been made have involved, in the main, spot lots needed for direct use or else far forward supplies for shipment from primary sources abroad. Importers and agents, appreciating the mood of consuming customers, have not exerted pressure to effect sales but have also pursued something of a waiting policy in the confident belief that demand soon will revive.

Despite the seasonal quietness obtaining, the market is characterized by a fairly steady price undertone. At any rate, quotations have recorded no further recession, and, if anything, have in certain cases registered a tendency to seek slightly higher levels. The agreement of European producers of pulp—including, it is stated, about 80 per cent of all the manufacturers of chemical pulp on the European Continent—to curtail their output of sulphite 15 per cent has engendered a better feeling in pulp manufacturing circles on the other side of the Atlantic, and steadier prices are now being named on this class of pulp. Curtailment of production in other quarters abroad also prompts manufacturers to anticipate a stronger technical market situation, and perhaps firmer prices, and there is less pressure to sell than was noted in the market sometime ago. The fact that a good many producers abroad are quoting slightly higher prices on pulp in forward positions than for current shipment is a reflection of their expectations that higher market levels will be witnessed later in 1931.

In a majority of instances strong unbleached sulphite is quoted at 2.15 to 2.20 cents a pound ex dock New York or other American Atlantic ports. It is possible that buyers are getting some such pulp at a shade lower, or down to about 2.10 cents per pound, but the price tone in strong sulphite is unquestionably firmer, and most shippers abroad are demanding at least 2.15 cents, while extra desirable qualities are held at up around 2.25 cents. Prime easy bleaching sulphite is quoted from 2.30 cents upward ex dock American Atlantic ports, ordinary Mitscherlich unbleached sulphite at 2.15 cents, and bleached sulphite of prime grade from about a low of 2.75 cents upwards, the range on the last named class of pulp being very broad, with as high as 4.25 cents asked for some mill brands. Prime Swedish kraft pulp is mostly quoted at 1.60 cents or a bit higher per pound ex dock, although it is said that purchases are possible in some quarters down to 1.50 cents a pound or $30 per ton. Imported groundwood is steady on a price basis of $32 per net ton for dry and $31 for moist ex dock Atlantic seaboard.

Chemical pulp imports into the United States in October, totaling 98,043 long tons of a value of $5,249,908, were smaller than the imports in the preceding month amounting to 103,765 tons of a declared value of $5,509,055, and also well under the 130,248 tons of a value of $7,478,171 imported in the corresponding month of 1929, according to official U. S. Department of Commerce statistics. The October imports brought the total for the first ten months of 1930 up to 1,104,492 tons, giving a monthly average of 110,449 tons, and registered a decrease as compared with a total of 1,193,407 tons or an average per month of 119,340 tons in the similar period of 1929. Groundwood imports in October were 27,951 long tons, valued at $724,525, against 26,341 tons of a value of $664,540 in the preceding month, and making a total for the first ten months of 1930 of 223,621 tons, valued at $6,063,945, contrasted with an aggregate of 192,904 tons of a value of $4,865,512 in the same period of 1929.

Current market quotations ex dock New York, and receipts at the port of New York during December, 1930, these data being taken from vessels reaching that port last month, follow:

Bleached sulphite, No. 1	2.75– 4.25
Unbleached sulphite, strong No. 1	2.10– 2.30
Unbleached sulphite, No. 2	1.90– 2.10
Easy bleaching sulphite	2.30– 2.50
Mitscherlich, unbleached, genuine	2.60– 2.80
Mitscherlich, unbleached, ordinary	2.15– 2.25
Kraft, standard Swedish	1.50– 1.75
Groundwood, per ton (dry)	32.00–33.00

Bulkley, Dunton & Co., 3,270 bls. from Hernosand, 9,200 Stugsund, 1,500 Starvik, 2,875 Gefle and 2,500 Iggesund; Guaranty Trust Co., 1,625 bls. from Sundsvall, 2,550 Wifstavarf and 254 Hamburg; Irving Trust Co., 150 bls. from Hernosand, 350 Bremen and 150 Olso; Stora Kopparberg Corp., 2,000 bls. from Skutskar; Johaneson, Wales & Sparre, 600 bls. from Starvik, 1,875 Soraker, 5,347 Gothenburg and 205 Olso; Scandinavian Pulp Agency, 250 bls. from Wifstavarf; Castle & Overton, 3,535 bls. from Hamburg and 65 Rottendam; Harriman Bros. & Co., 1,843 bls. from Hamburg; International Bank, Inc., 200 bls. from Hamburg; Price & Pierce, 4,950 bls. from Wallvik and 500 Gothenburg; Pagel, Horton & Co., 10,850 bls. from Gefle; A.P.W. Paper Co., 9,356 bls. groundwood from Seven Islands, Quebec, and 1,486 tons groundwood from Sheet Harbor, N. S.; M. Gottesman & Co., 2,500 bls. from Iggiesund, 6,320 Sebenico, 4,200 Gothenburg and 1,150 Rotterdam; Parsons & Whittemore, 2,500 bls. from Gothenburg; Kidder, Peabody & Co., 460 bls. from Gothenburg; E. M. Sergeant Co., 2,415 bls. from Gothenburg and 300 Oslo; Chemical Bank & Trust Co., 900 bls. from Oslo and 1,800 Greaker; J. Andersen & Co., 150 bls. from Oslo and 2,773 Greaker; Lagerloef Trading Co., 254 bls. from Viborg; Atterbury Bros., 2,225 bls. from Oslo and 600 Greaker; I. Muens, 51,979 kilos from Hamburg; Acer,

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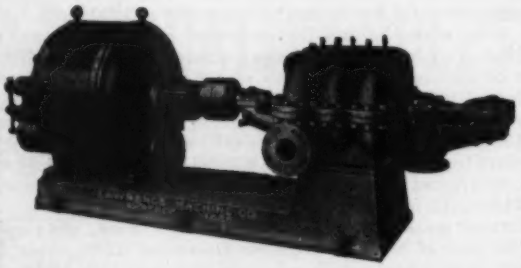

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McLernon & Co., 1,625 tons from Chandler, Quebec; Brown Bros. & Co., 5,750 bls. from Norrsundet; National City Bank, 304 bls. from Hamburg; Order, 625 bls. from Soraker, 706 Hamburg, 1,015 Kotka, 9,936 Hernosand, 900 Gothenburg, 2,230 Bremen and 1,250 Oslo.

Paper Stock

Importations of papermaking raw material into the United States continue on the decline. During October, imports of papermaking rags amounted to 14,821,074 pounds, against 42,341,319 pounds in the same month of 1929, making a total for the first ten months of 1930 of 258,181,830 pounds, showing a big decrease from the 369,779,107 pounds imported in the corresponding time of 1929. Imports of other paper stock in the first ten months of last year amounted to 203,687,425 pounds, compared with 227,234,044 pounds in the similar period of 1929.

Imports last month were on a small scale, taking the receipts through the port of New York as a criterion. Arrivals of all kinds of paper stock excepting wood pulp at the port of New York in December, these data being taken from manifests of arriving steamers and therefore unofficial, were as follows:

Old Rope—Brown Bros. & Co., 342 coils and 58 bls.; Furness, Withy & Co., 94 bls.; International Trust Co., 153 bls.; Chemical Bank & Trust Co., 70 coils; Amsco Trading Co., 41 bls.; Darmstadt, Scott & Courtney, 46 coils; Irving Trust Co., 72 coils; Baring Bros. & Co., 70 coils; Order, 47 bls.

Old Bagging—E. Butterworth & Co., 80 bls.; International Trust Co., 265 bls.; Banca Commerciale Italiana Trust Co., 882 bls.; International Acceptance Bank, 46 bls.; R. F. Downing & Co., 90 bls.; Interstate Trust Co., 31 bls.; Guaranty Trust Co., 25 bls.; Irving Trust Co., 62 bls.; Order, 317 bls.

Rags—Castle & Overton, 210 bls.; J. Reiss & Co., 30 bls.; G. J. Schuster, 21 bls.; Arkus, Inc., 33 bls.; S. Birkenstein & Sons, 104 bls.; Darmstadt, Scott & Courtney, 206 bls.; Fritz Stern, 183 bls.; Ernst Mayer, 123 bls.; Jaffe Products Co., 8 bls.; Victor Galaup, Inc., 28 bls.; C. Nelson, 44 bls.; E. J. Keller Co., 256 bls.; Chase National Bank, 272 bls.; International Trust Co., 283 bls.; Irving Trust Co., 60 bls.; Chemical Bank & Trust Co., 120 bls.; Bankers Trust Co., 50 bls.; Bank of New York & Trust Co., 270 bls.; New York Trust Co., 35 bls.; Guaranty Trust Co., 15 bls.; Atlantic National Bank, 75 bls.; Banca Commerciale Italiana Trust Co., 7 bls.; Kidder Peabody Acceptance Corporation, 100 bls.; W. A. Wood, 32 bls.; A. W. Fenton, Inc., 71 bls.; Amtorg Trading Corp., 2,547 bls.; Baring Bros. & Co., 151 bls.; Erie Railroad Co., 17 bls.; J. W. Elwell, 298 bls.; Brown Bros. & Co., 38 bls.; Order, 132 bls.

Miscellaneous Paper Stock—George W. Millar & Co., 51 bls.; Whaling Waste Products Co., 69 bls.; J. Cohen & Sons, 80 bls.; American Express Co., 3 bls.; S. Birkenstein & Sons, 303 bls.; Castle & Overton, 1,016 bls.; Baring Bros. & Co., 61 bls.; Milton Snedeker Corp., 59 bls.; Chemical Bank & Trust Co., 186 bls.; Order, 152 bls.

Paper

Imports of paper into the United States registered a gain in October in point of total value as compared with the preceding month, but a decline as contrasted with the same month in 1929, according to official statistics issued by the U. S. Department of Commerce. The October importations reached a value of $13,259,907, against $11,126,352 in September last, and $14,993,400 in October, 1929. The imports during the first ten months of 1930 totaled in value $122,978,285, contrasted with $133,789,713 in the similar period of the preceding year.

Imports last month were fairly large, with some sizeable shipments of printing, wrapping, cigarette and other classes of paper received. Receipts of all kinds of paper at the port of New York during December, these data being taken from manifests of vessels reaching that port during the month and therefore unofficial, were as follows:

Printing—Perkins-Goodwin Co., 1,716 rolls from Hamburg and 84 reels Bremen; P. C. Zuhlke, 2 cs. from Antwerp and 25 cs. Rotterdam; E. Dietzgen & Co., 154 cs. from Rotterdam and 100 cs. Hamburg; F. C. Strype, 24 cs. from Rotterdam; C. Bruening, 205 reels from Rotterdam; Keuffel & Esser Co., 7 cs. and 49 rolls from Hamburg; Parsons & Whittemore, 417 reels from Hamburg and 191 reels Gothenburg; T. N. Fairbanks, 62 cs. from Genoa; Baldwin Paper Co., 180 rolls from Kotka; Walker Goulard Plehn Co., 102 bls. from Kotka, 23 bls. Gothenburg and 198 reels Rotterdam; W. H. Bell, 8,831 rolls from Liverpool, N. S.; Guaranty Trust Co., 52 bls. from Hamburg; The Times Co., 152 reels from Gothenburg; Macfadden Publications, 172 reels from Gothenburg; Scripps-Howard Supply Co., 1,049 reels from Gothenburg; F. L. Kraemer & Co., 25 cs. from Havre, 3 cs. London and 6 cs. Southampton; Dingelstedt & Co., 7 cs. from Bremen; A. S. Zabriskie, 68 reels from Hamburg; Martin & Bechtold, 13 cs. from Hamburg; Phoenix Shipping Co., 213 bls. from Bremen; C. Steiner, 26 cs. from Bremen and 61 rolls and 7 bls. Rotterdam; Lunham & Reeve, 400 reels from Kotka; H. Reeve Angel & Co., 71 reels from Kotka and 63 reels Gothenburg; Stora Kopparberg Corp., 317 reels from Gothenburg; International Paper Co., 8,176 rolls from Dalhousie, N. B.; Bank of Montreal, 7,727 rolls from Corner Brook, N. F.; Order, 897 reels from Kotka, 8 cs. and 86 reels Hamburg, 1,811 reels and 111 cs. Bremen, and 496 rolls and 139 bls. Oslo.

Wrapping—Standard Products Corp., 12 cs. and 24 rolls from Antwerp; Sylvania Industrial Corp., 45 cs. from Antwerp; C. Steiner, 69 bls. from Rotterdam; Marine Midland Trust Co., 321 rolls and 4

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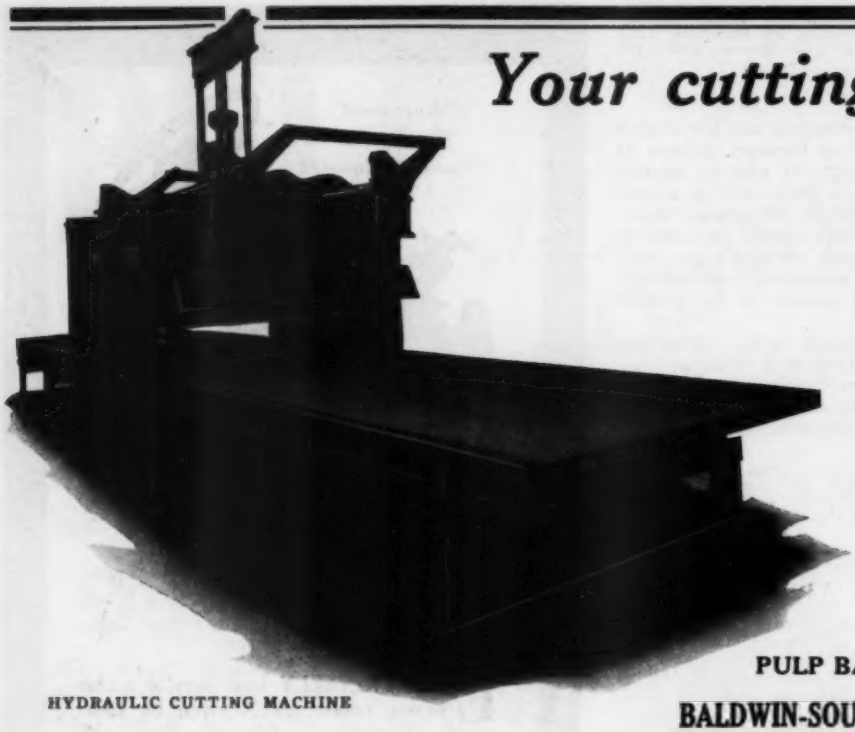

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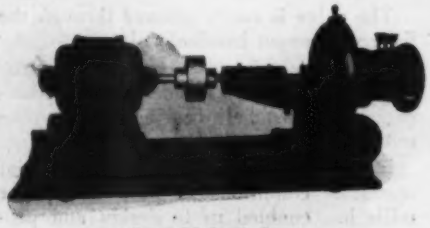

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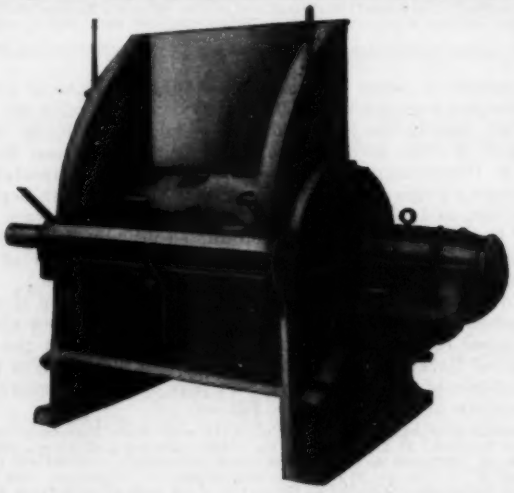

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Cigarette—P. J. Schweitzer, Inc., 264 cs. from Marseilles; M. Spiegel & Sons, 58 bls. from Genoa and 24 cs. Hamburg; Standard Products Corp., 133 cs. from Havre; DeMauduit Paper Corp., 901 cs. from Havre and 1,604 cs. St. Nazaire; Southern Pacific Co., 5 cs. from Southampton; American Tobacco Co., 1,050 cs. from Bordeaux; Champagne Paper Corp., 527 cs. from Havre; International Madison Bank, 15 cs. from St. Nazaire.

Writing—Guibont Freres & Co., 3 cs. from Havre and 8 cs. Southampton; D. C. Andrews & Co., 2 cs. from Gothenburg.

Filter—A. Giese & Son, 12 cs. from Hamburg, 44 bls. Southampton and 17 bls. Bordeaux; C. Sleicher & Scholl Co., 21 cs. from Hamburg; H. Reeve Angel & Co., 18 cs. from Southampton and 41 cs. London; J. Manheimer, 66 bls. from Southampton.

Tissue—D. C. Andrews & Co., 2 cs. from Liverpool.

Hanging—F. J. Emmerich & Co., 141 bls. and 27 cs. from Hamburg, 44 bls. Liverpool and 2 bls. London; C. A. Haynes & Co., 84 bls. from London and 19 cs. Southampton; A. C. Dodman, Jr., Inc., 4 bls. from Rotterdam; S. Stern Stiner & Co., 2 cs. from Bremen; W. H. S. Lloyd & Co., 2 bls. from London; Kensington Wallpaper Co., 5 bls. from Havre; Irving Trust Co., 10 cs. from Hamburg; Gerhard & Hey, 3 bls. from Hamburg; F. A. Binder, 15 bls. from Hamburg; J. E. Bernard & Co., 3 bls. from Antwerp, 65 bls. Southampton, 65 cs. Liverpool, 27 bls. Hamburg and 10 cs. Bremen; F. G. Prager Co., 34 bls. from Antwerp; R. F. Downing & Co., 3 cs. from Southampton, 25 cs. Yokohama and 3 cs. Antwerp; Rohner, Gehrig & Co., 17 bls. from Hamburg; C. Grimmer & Co., 2 cs. from Rotterdam; Guaranty Trust Co., 15 cs. from Hamburg; Order, 3 bls. from Hamburg, 10 bls. London, 2 cs. Copenhagen and 21 cs. Southampton.

Drawing—Keuffel & Esser Co., 41 cs. and 30 rolls from Hamburg; H. Reeve Angel & Co., 3 cs. from London.

Board—Walker Goulard Plehn Co., 309 rolls from Rotterdam; Rohner, Gehrig & Co., 19 cs. from Hamburg; H. Fuchs & Son, 108 bls. from Gothenburg; Lagerloef Trading Co., 129 bls. from Kotka and 34 bls. Helsingfors; Progressive Fiber Specialty Co., 19 bls. from Gothenburg; Marine Midland Trust Co., 22 cs. from Gothenburg; Colmar Paper Corp., 8 cs. from Antwerp; Richards Shipping Corp., 9 cs. from Hamburg.

Miscellaneous—P. H. Petry & Co., 51 cs. from Havre; F. A. Flinn & Co., 3 cs. from Havre; Keller-Dorian Paper Co., 67 cs. from Havre, 8 cs. Southampton and 14 cs. Marseilles; R. F. Downing & Co., 2 cs. from Havre; Montag & Cassidy, 9 pkgs. from Havre; Borden & Riley Paper Mfg. Co., 15 cs. from Antwerp; P. C. Zuhlke, 5 cs. from Antwerp; Heemsoth, Basse & Co., 6 cs. from Rotterdam; Hensel, Bruckman & Lorbacher, 18 cs. from Bremen and 83 cs. Hamburg; Winter, Wolff & Co., 3 cs. from Bremen; S. Langsdorf, 3 cs. from Hamburg; Bank of America, 40 cs. from Hamburg; International Trust Co., 6 cs. from Hamburg; Whitfield Paper Works, 51 cs. from Kobe; P. Puttmann, 4 cs. from Havre and 30 cs. Antwerp; W. A. Foster, 7 cs. from London and 3 cs. Southampton; P. C. Kuyper & Co., 5 cs. from Bremen; J. Beckhardt & Co., 2 cs. from Bremen; International Acceptance Bank, 30 cs. from Bremen; B. F. Drakenfeld & Co., 65 cs. from Liverpool; Bendix Paper Co., 21 cs. from Hamburg; Tamm & Co., 9 cs. from Bremen; F. L. Kraemer & Co., 23 cs. from Bremen; S. Gilbert, 7 cs. from Bremen; G. W. Sheldon & Co., 5 cs. from Southampton; Whiting-Patterson Co., 16 bls. from Southampton and 19 cs. Rotterdam; Happel & McAvoy, 7 cs. from Rotterdam; J. Henschel & Co., 4 cs. from Hamburg; Saybusch Paper Mfg. Co., 4 cs. from Hamburg; Fuchs & Lang Mfg. Co., 2 cs. from Hamburg; F. Murray Hill, Inc., 5 cs. from Southampton and 9 cs. Bremen; Tice & Lynch, 10 cs. from London; Fifth Avenue Bank, 10 bls. from Hamburg; E. Dietzgen & Co., 107 cs. from Hamburg; R. H. Macy & Co., 6 cs. from Hamburg; Bush Service Corp., 2 bls. from Havre; F. C. Strype, 4 cs. from Yokohama; Japan Paper Co., 36 cs. from Yokohama, 19 cs. Havre, 2 cs. Gothenburg, 4 cs. Rotterdam and 19 cs. Trieste; American Express Co., 22 cs. from Hamburg; Titan Shipping Co., 2 cs. from Rotterdam; Globe Shipping Co., 60 cs. from Rotterdam, 51 cs. Hamburg and 78 cs. Bremen; National Freight Forwarding Co., 9 cs. from Bremen; International Forwarding Co., 4 cs. from Rotterdam, 42 cs. Antwerp and 2 cs. Hamburg.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 48963—Bank-post paper, wood free, watermarked, white. Amsterdam, Netherlands. Purchase desired.

No. 48962—Paper containers for milk, of strong greaseproof composition. Dublin, Ireland. Purchase desired.

No. 48902—Insulating board. Calgary, Canada. Purchase desired.

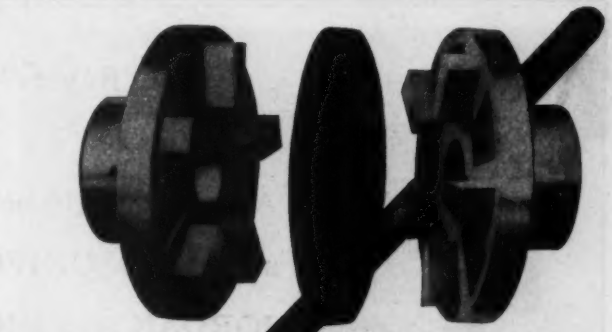
No. 48940—Caustic soda, 76 per cent. Medellin, Colombia. Agency desired.

No. 49098—Paper bags, white and manila. Jerusalem, Palestine. Agency desired.

No. 49052—Bags, and kraft and manila wrapping paper, plain. Kingston, Jamaica. Agency desired.

No. 49099—Cardboard boxes for face powder. Pisa, Italy. Purchase desired.

No. 49094—Cigarette papers and paper for cigarette pack-



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THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

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PACIFIC SALES COMPANY, Security Bldg., Portland, Ore.

ages and boxes. Managua, Nicaragua. Purchase desired.

No. 49097—Wrapping paper. San Juan, P. R. Agency desired.

No. 49087—Paper soda straw making machinery. Montreal, Canada. Purchase desired.

No. 49164—Roofing paper, tar. Berlin, Germany. Purchase and agency desired.

No. 49178—Paper containers, waxed, with pull lids. Toronto, Canada. Purchase and agency desired.

No. 49199—Wrapping paper. Manzanillo, Cuba. Agency desired.

No. 49156—Caustic soda. Rio de Janeiro, Brazil. Agency desired.

Paperboard Industries Association Relinquishes Administration of Trade Practice Rules

In accordance with action taken by the members of the Paperboard Industries Association at annual meeting held in New York City, November 20, 1930, effective as of December 31, 1930, the Paperboard Industries Association will cease to administer the trade practice rules for the paperboard, container and folding box industries, and the special division created to administer these rules will be discontinued.

In effect, the Paperboard Industries Association is merely giving up the obligation to administer these rules, which obligation it assumed at a mass meeting of the industry held in New York City, March 19, 1929.

The trade practice rules adopted by the industry, and approved by the Federal Trade Commission, are, of course, still in effect and may be availed of by the industry, irrespective of the discontinuance of the Trade Practice Division of the Paperboard Industries Association.

Gherardi President of American Standards Ass'n

At the annual meeting of the American Standards Association held in New York December 11, Bancroft Gherardi was elected president. Mr. Gherardi is vice-president and chief engineer of the American Telephone and Telegraph Company, and has been a member of the association's board of directors. As president, he will assume the direction of the national and international standardization activities of the organization.

Mr. Gherardi has been affiliated with the American Telephone and Telegraph Company since 1907, and has served in his present executive capacity since 1920. He is past president of the American Institute of Electrical Engineers, and has also served as president of the United Engineering Society.

Gartland Made Sales Manager of Northwest Paper Co.

I. L. Gartland, for many years closely identified with the paper industry, has been appointed sales manager of the Northwest Paper Company, Cloquet, Minnesota, effective January 1.

The Northwest Paper Company, an affiliated company of the Weyerhaeuser lumber interests, manufactures a complete and varied line of paper. Due to its affiliation with the Weyerhaeuser companies it controls all its properties and so guides each step in the manufacturing processes from the standing timber to the finished paper.

Mr. Gartland brings with him to his new position a wealth of experience in all phases of this business. Starting twenty years ago as an apprentice in the beater room, he worked his way up through the paper machine room, research department, and later into sales work. During the past few years Mr. Gartland has been associated with the following companies: Port Huron Sulphite and Paper Co., Fletcher Paper Company, Baylass Manufacturing Co., Saranac Pulp & Paper Co., and Groveton Paper Company.

St. Regis Paper Company, Norfolk, N. Y., has ordered from J. O. Ross Engineering Company, additional ventilating equipment to be used in connection with present equipment.

Installation of "leadized" pipe in the Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.

"LEADIZED"

A continuous protective coating, inside and outside—Not a lining

Application of the "leadizing" patented process to pipe made of any wrought material makes it resistant to all acid solutions used in pulp and paper manufacture.

Water pipe lines that are "leadized" remain free from slime. Friction is reduced in "leadized" paper stock lines.

A few of our installations:

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Brown Paper Co., West Monroe, La.
Bryant Paper Co., Kalamazoo, Mich.
Combined Locks Paper Co., Appleton, Wis.
Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.
Kalamazoo Paper Co., Kalamazoo, Mich.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.
Nekoosa-Edwards Paper Co., Port Edwards, Wis.
Paul Sorg Paper Co., Middletown, Ohio
Thilmany Pulp & Paper Co., Kaukauna, Wis.

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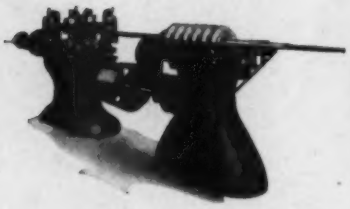

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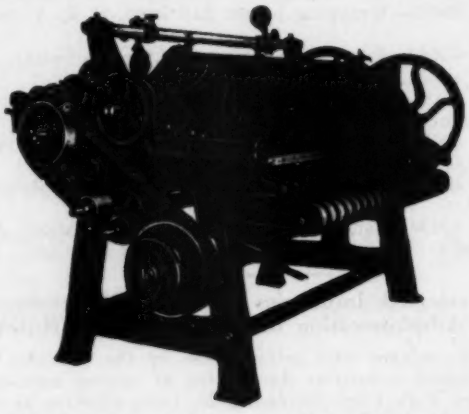

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Advantages in the Use of Sodium Silicate

Several Nielsen Surveys for the Philadelphia Quartz Co., Philadelphia, which were reviewed recently, indicated some interesting facts in regard to the use of sodium silicate in the production of a wide variety of papers. These reports covered the use of sodium silicate in the production of cover paper, rope and jute specialties, groundwood specialties, offset papers, and a number of miscellaneous uses about the mill.

Sodium silicate in a cover paper furnish of 25 per cent rag, 7 per cent soda pulp, and 68 per cent sulphite was found to improve the hardness, finish, and snap. It also increased the tear and improved the ink resistance as well as the texture and appearance of the sheet with a decrease in beating time.

The most important effect of the silicate in a rope and jute furnish was an improvement in the finish. In a plant manufacturing groundwood specialties, it was noted that sodium silicate in the furnish increased the bursting strength, improved the rattle and hardness, permitted higher standards of finish and quality and eliminated fuzz. Likewise, an increased clay retention was attributed to the use of the silicate.

The report covering the use of sodium silicate in the production of offset paper showed that silicate and starch replaced glue to obtain the desired hardening effect. At the same time other desirable characteristics in the finished paper in the way of higher bursting strength, improved finish and better printing qualities were obtained. Hydration of fibers in another mill was reported to be aided through the addition of silicate to the stock in the beater and rosin retention was known to be improved through its use.

Other applications for silicate mentioned in the reports included it's use for capping of rolls, for floor hardening, in mortar for digester bricks, and in conjunction with sodium hypochlorite to remove slime from pipe lines.

Another interesting application was for painting the bottoms and sides of concrete beater and save-all tanks and jordan chests. Through the use of sodium silicate in this manner the pores of the concrete are filled. The filled surface is smooth and prevents to a large extent the formation and collection of slime and permits rapid cleaning.

Penna.-New Jersey Supers Arrange Meeting

The Pennsylvania-New Jersey Division of the American Pulp and Paper Mill Superintendents Association held a general business meeting at Wilmington, Del., on December 13, 1930, to discuss various topics relating to the forthcoming annual spring meeting. Those present included E. C. Gildenzopf, chairman; James G. Ramsey, J. Bertwell White, Craig Maxwell, J. L. Mullin, Phillip Wood, John W. Gregor and John W. James.

It was decided to hold the annual spring divisional meeting in the Yorktowne Hotel at York, Pa., on Saturday, April 25, 1931. Registrations will be in charge of Mrs. Joseph Dow from 6 to 9 p. m. on Friday, and 8 to 9 a. m. on Saturday. As a committee of arrangements for this meeting the following members have been named:

Charles H. Kephart, York-Haven Paper Company, chairman; George J. Foreman, Schmidt & Ault Paper Co., and William H. Sutherland, of the Penn Fibre Company.

After registration on Saturday, April 25, a morning session will be held for the consideration of matters pertaining to the general business of the association.

Any member who may care to contribute a paper of interest to the association, whether technical or practical, is asked to confer with Mr. Gildenzopf, chairman, at the earliest possible date. Past President James G. Ramsey will have charge of the question box. Mill superintendents and mill owners are invited to bring their troubles to this meeting, as it will afford a good opportunity to check up on current problems.

The business session will be adjourned at half-past twelve for luncheon, and following this the afternoon will be spent in inspection trips through some interesting mills in York and vicinity. There will be special arrangements made for the entertainment of the ladies in attendance.

The meeting will close with a banquet at the Yorktowne Hotel on Saturday evening at 7:30.

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